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(54) Title: HUMAN PROSTATE CANCER ASSOCIATED GENE SEQUENCES AND POLYPEPTIDES

(57) Abstract

This invention relates to newly identified prostate or prostate cancer related polynucleotides and the polypeptides encoded by these polynucleotides herein collectively known as "prostate cancer antigens", and to the complete gene sequences associated therewith and to the expression products thereof, as well as the use of such prostate cancer antigens for detection, prevention and treatment of disorders of the prostate, particularly the presence of prostate cancer. This invention relates to the prostate cancer antigens as well as vectors, host cells, antibodies directed to prostate cancer antigens and recombinant and synthetic methods for producing the same. Also provided are diagnostic methods for diagnosing and treating, preventing and/or prognosing disorders related to the prostate, including prostate cancer, and therapeutic methods for treating such disorders. The invention further relates to screening methods for identifying agonists and antagonists of prostate cancer antigens of the invention. The present invention further relates to methods and/or compositions for inhibiting the production and/or function of the polypeptides of the present invention.

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Human Prostate Cancer Associated Gene Sequences and Polypeptides

Field of the Invention

This invention relates to newly identified prostate or prostate cancer related polynucleotides and the polypeptides encoded by these polynucleotides herein collectively known as "prostate cancer antigens," and to the complete gene sequences associated therewith and to the expression products thereof, as well as the use of such prostate cancer antigens for detection, prevention and treatment of disorders of the prostate, particularly the presense of prostate cancer. This invention relates to the prostate cancer antigens as well as vectors, host cells, antibodies directed to prostate cancer antigens and recombinant and synthetic methods for producing the same. Also provided are diagnostic methods for diagnosing and treating, preventing and/or prognosing disorders related to the prostate, including prostate cancer, and therapeutic methods for treating such disorders. The invention further relates to screening methods for identifying agonists and antagonists of prostate cancer antigens of the invention. The present invention further relates to methods and/or compositions for inhibiting the production and/or function of the polypeptides of the present invention.

Background of the Invention

Cell growth is a carefully regulated process which responds to specific needs of the body. Occassionally, the intricate, and highly regulated controls dictating the rules for cellular division break down. When this occurs, the cell begins to grow and divide independently of its homeostatic regulation resulting in a condition commonly referred to as cancer. In fact, cancer is the second leading cause of death among Americans aged 25-44.

Prostate cancer has become the most common cancer among American men, and only lung cancer is responsible for more cancer deaths (Boring, Cancer Statistics, 41:19-36 (1991)). The age specific mortality rate has slowly increased over the past 50 years and in black American men is nearly double the rate found in white men (Carter, Prostate,

16:39-48 (1990)). Prostate cancer is responsible for nearly three percent of all deaths in men over the age of 55 years (Seidman, et al., Probabilities of Eventually Developing or Dying of Cancer-United States, 35:36-56 (1985)). Since the incidence of prostate cancer increases more rapidly with age than any other cancer, and the average age of American men is rising, the number of patients with prostate cancer is expected to increase dramatically over the next decade.

Approximately 30% of men with prostate cancer have distant metastases at the time of diagnosis (Schmidt, et al., J. Urol., 136:416-421 (1986)). Despite the impressive symptomatic response of metastases to hormonal manipulation (androgen deprivation), the survival rate for these patients is dismal: the median duration of survival is less than three years (Eyar, Urologic Pathology: The Prostate, Philadelphia, Pa., Lea and Febiger, 241-267 (1977)). By five years, over 75% and by ten years, more than 90% of these patients die of their cancer rather than with it (Silverberg, Cancer, 60:692-717 (1987) (Suppl.)). The problem with prostate cancer is that many forms of prostate cancer are latent, in other words, such forms are difficult to detect. Approximately 30% of the men over the age of 50 years who have no clinical evidence of prostate cancer harbor foci of cancer within the prostate (McNeal, et al., The Lancet, January, 11:60-63 (1986)). This remarkably high prevalence of prostate cancer at autopsy, seen in no other organ, makes it the most common malignancy in human beings (Dhom, J. Cancer Res. Clin. Oncol., 106:210-218 (1983)). There is strong support for the concept of multi-step process in the pathogenesis of prostate cancer in which latent cancers progress through some but not all of the steps necessary for full malignant expression (Utter, et al., J. Urol., 143:742-746 (1990).

There are a variety of techniques for early detection and characteristics of prostate cancers, however, none of them are devoid of problems. Prostate cancer is a notoriously silent disease with few early symptoms. There is a need, therefore, for identification and characterization of factors that modulate activation and differentiation of prostate cells, both normally and in disease states. In particular, there is a need to isolate and characterize additional molecules that mediate apoptosis, DNA repair, tumor-mediated angiogenesis, genetic imprinting, immune responses to tumors and tumor antigens and, among other things, that can play a role in detecting, preventing, ameliorating or correcting dysfunctions or diseases related to the prostate.

Summary of the Invention

The present invention includes isolated nucleic acid molecules comprising, or alternatively, consisting of, a prostate and/or prostate cancer associated polynucleotide sequence disclosed in the sequence listing (as SEQ ID Nos:1 to 940) and/or contained in a human cDNA clone described in Tables 1, 2 and 5 and deposited with the American Type Culture Collection ("ATCC"). Fragments, variant, and derivatives of these nucleic acid molecules are also encompassed by the invention. The present invention also includes isolated nucleic acid molecules comprising, or alternatively consisting of, a polynucleotide encoding a prostate or prostate cancer polypeptide. The present invention further includes prostate and/or prostate cancer polypeptides encoded by these polynucleotides. Further provided for are amino acid sequences comprising, or alternatively consisting of, prostate and/or prostate cancer polypeptides as disclosed in the sequence listing (as SEQ ID Nos: 941 to 1880) and/or encoded by a human cDNA clone described in Tables 1, 2 and 5 and deposited with the ATCC. Antibodies that bind these polypeptides are also encompassed by the invention. Polypeptide fragments, variants, and derivatives of these amino acid sequences are also encompassed by the invention, as are polynucleotides encoding these polypeptides and antibodies that bind these polypeptides. Also provided are diagnostic methods for diagnosing and treating, preventing, and/or prognosing disorders related to the prostate, including prostate cancer, and therapeutic methods for treating such disorders. The invention further relates to screening methods for identifying agonists and antagonists of prostate cancer antigens of the invention.

Detailed Description

Tables

Table 1 summarizes some of the prostate cancer antigens encompassed by the invention (including contig sequences (SEQ ID NO:X) and the cDNA clone related to the contig sequence) and further summarizes certain characteristics of the prostate cancer polynucleotides and the polypeptides encoded thereby. The first column shows the "SEQ ID NO:" for each of the 940 prostate cancer antigen polynucleotide sequences of the invention. The second column provides a unique "Sequence/Contig ID" identification for

each prostate and/or prostate cancer associated sequence. The third column, "Gene Name," and the fourth column, "Overlap," provide a putative identification of the gene based on the sequence similarity of its translation product to an amino acid sequence found in a publicly accessible gene database and the database accession no. for the database sequence having similarity, respectively. The fifth and sixth columns provide the location (nucleotide position nos. within the contig), "Start" and "End", in the polynucleotide sequence "SEQ ID NO:X" that delineate the preferred ORF shown in the sequence listing as SEQ ID NO:Y. The seventh and eighth columns provide the "% Identity" (percent identity) and "% Similarity" (percent similarity), respectively, observed between the aligned sequence segments of the translation product of SEQ ID NO:X and the database sequence. The ninth column provides a unique "Clone ID" for a cDNA clone related to each contig sequence.

Table 2 summarizes ATCC Deposits, Deposit dates, and ATCC designation numbers of deposits made with the ATCC in connection with the present application.

Table 3 indicates public ESTs, of which at least one, two, three, four, five, ten, fifteen or more of any one or more of these public EST sequences are optionally excluded from certain embodiments of the invention.

Table 4 lists residues comprising antigenic epitopes of antigenic epitope-bearing fragments present in most of the prostate or prostate cancer associated polynucleotides described in Table 1 as predicted by the inventors using the algorithm of Jameson and Wolf, (1988) Comp. Appl. Biosci. 4:181-186. The Jameson-Wolf antigenic analysis was performed using the computer program PROTEAN (Version 3.11 for the Power MacIntosh, DNASTAR, Inc., 1228 South Park Street Madison, WI). Prostate and prostate cancer associated polypeptides (e.g., SEQ ID NO:Y, polypeptides encoded by SEQ ID NO:X, or polypeptides encoded by the cDNA in the referenced cDNA clone) may possess one or more antigenic epitopes comprising residues described in Table 4. It will be appreciated that depending on the analytical criteria used to predict antigenic determinants, the exact address of the determinant may vary slightly. The residues and locations shown in column two of Table 4 correspond to the amino acid sequences for most prostate and prostate cancer associated polypeptide sequence shown in the Sequence Listing.

Table 5 shows the cDNA libraries sequenced, and ATCC designation numbers

and vector information relating to these cDNA libraries.

Definitions

The following definitions are provided to facilitate understanding of certain terms used throughout this specification.

In the present invention, "isolated" refers to material removed from its original environment (e.g., the natural environment if it is naturally occurring), and thus is altered "by the hand of man" from its natural state. For example, an isolated polynucleotide could be part of a vector or a composition of matter, or could be contained within a cell, and still be "isolated" because that vector, composition of matter, or particular cell is not the original environment of the polynucleotide. The term "isolated" does not refer to genomic or cDNA libraries, whole cell total or mRNA preparations, genomic DNA preparations (including those separated by electrophoresis and transferred onto blots), sheared whole cell genomic DNA preparations or other compositions where the art demonstrates no distinguishing features of the polynucleotide/sequences of the present invention.

As used herein, a "polynucleotide" refers to a molecule having a nucleic acid sequence contained in SEQ ID NO:X (as described in column 1 of Table 1) or the related cDNA clone (as described in column 9 of Table 1 and contained within a library deposited with the ATCC). For example, the polynucleotide can contain the nucleotide sequence of the full length cDNA sequence, including the 5' and 3' untranslated sequences, the coding region, as well as fragments, epitopes, domains, and variants of the nucleic acid sequence. Moreover, as used herein, a "polypeptide" refers to a molecule having an amino acid sequence encoded by a polynucleotide of the invention as broadly defined (obviously excluding poly-Phenylalanine or poly-Lysine peptide sequences which result from translation of a polyA tail of a sequence corresponding to a cDNA).

In the present invention, "SEQ ID NO:X" was often generated by overlapping sequences contained in multiple clones (contig analysis). A representative clone containing all or most of the sequence for SEQ ID NO:X is deposited at Human Genome Sciences, Inc. (HGS) in a catalogued and archived library. As shown in column 9 of Table 1, each clone is identified by a cDNA Clone ID. Each Clone ID is unique to an

individual clone and the Clone ID is all the information needed to retrieve a given clone from the HGS library. In addition to the individual cDNA clone deposits, most of the cDNA libraries from which the clones were derived were deposited at the American Type Culture Collection (hereinafter "ATCC"). Table 5 provides a list of the deposited cDNA libraries. One can use the Clone ID to determine the library source by reference to Tables 2 and 5. Table 5 lists the deposited cDNA libraries by name and links each library to an ATCC Deposit. Library names contain four characters, for example, "HTWE." The name of a cDNA clone ("Clone ID") isolated from that library begins with the same four characters, for example "HTWEP07". As mentioned below, Table 1 correlates the Clone ID names with SEQ ID NOs. Thus, starting with a SEQ ID NO, one can use Tables 1, 2 and 5 to determine the corresponding Clone ID, from which library it came and in which ATCC deposit the library is contained. Furthermore, it is possible to retrieve a given cDNA clone from the source library by techniques known in the art and described elsewhere herein. The ATCC is located at 10801 University Boulevard, Manassas, Virginia 20110-2209, USA. The ATCC deposits were made persuant to the terms of the Budapest Treaty on the international recognition of the deposit of microorganisms for the purposes of patent procedure.

A "polynucleotide" of the present invention also includes those polynucleotides capable of hybridizing, under stringent hybridization conditions, to sequences contained in SEQ ID NO:X, or the complement thereof (e.g., the complement of any one, two, three, four, or more of the polynucleotide fragments described herein), and/or sequences contained in the related cDNA clone within a library deposited with the ATCC. "Stringent hybridization conditions" refers to an overnight incubation at 42 degree C in a solution comprising 50% formamide, 5x SSC (750 mM NaCl, 75 mM trisodium citrate), 50 mM sodium phosphate (pH 7.6), 5x Denhardt's solution, 10% dextran sulfate, and 20 μg/ml denatured, sheared salmon sperm DNA, followed by washing the filters in 0.1x SSC at about 65 degree C.

Also included within "polynucleotides" of the present invention are nucleic acid molecules that hybridize to the polynucleotides of the present invention at lower stringency hybridization conditions. Changes in the stringency of hybridization and signal detection are primarily accomplished through the manipulation of formamide concentration (lower percentages of formamide result in lowered stringency); salt

conditions, or temperature. For example, lower stringency conditions include an overnight incubation at 37 degree C in a solution comprising 6X SSPE (20X SSPE = 3M NaCl; 0.2M NaH_2PO_4; 0.02M EDTA, pH 7.4), 0.5% SDS, 30% formamide, 100 ug/ml salmon sperm blocking DNA: followed by washes at 50 degree C with 1XSSPE, 0.1% SDS. In addition, to achieve even lower stringency, washes performed following stringent hybridization can be done at higher salt concentrations (e.g. 5X SSC).

Note that variations in the above conditions may be accomplished through the inclusion and/or substitution of alternate blocking reagents used to suppress background in hybridization experiments. Typical blocking reagents include Denhardt's reagent, BLOTTO, heparin, denatured salmon sperm DNA, and commercially available proprietary formulations. The inclusion of specific blocking reagents may require modification of the hybridization conditions described above, due to problems with compatibility.

Of course, a polynucleotide which hybridizes only to polyA+ sequences (such as any 3' terminal polyA+ tract of a cDNA shown in the sequence listing), or to a complementary stretch of T (or U) residues, would not be included in the definition of "polynucleotide," since such a polynucleotide would hybridize to any nucleic acid molecule containing a poly (A) stretch or the complement thereof (e.g., practically any double-stranded cDNA clone generated using oligo dT as a primer).

The polynucleotides of the present invention can be composed of any polyribonucleotide or polydeoxribonucleotide, which may be unmodified RNA or DNA or modified RNA or DNA. For example, polynucleotides can be composed of single- and double-stranded DNA, DNA that is a mixture of single- and double-stranded regions, single- and double-stranded RNA, and RNA that is mixture of single- and double-stranded regions, hybrid molecules comprising DNA and RNA that may be single-stranded or, more typically, double-stranded or a mixture of single- and double-stranded regions. In addition, the polynucleotide can be composed of triple-stranded regions comprising RNA or DNA or both RNA and DNA. A polynucleotide may also contain one or more modified bases or DNA or RNA backbones modified for stability or for other reasons. "Modified" bases include, for example, tritylated bases and unusual bases such as inosine. A variety of modifications can be made to DNA and RNA; thus, "polynucleotide" embraces chemically, enzymatically, or metabolically modified forms.

In specific embodiments, the polynucleotides of the invention are at least 15, at least 30, at least 50, at least 100, at least 125, at least 500, or at least 1000 continuous nucleotides but are less than or equal to 300 kb, 200 kb, 100 kb, 50 kb, 15 kb, 10 kb, 7.5kb, 5 kb, 2.5 kb, 2.0 kb, or 1 kb, in length. In a further embodiment, polynucleotides of the invention comprise a portion of the coding sequences, as disclosed herein, but do not comprise all or a portion of any intron. In another embodiment, the polynucleotides comprising coding sequences do not contain coding sequences of a genomic flanking gene (i.e., 5' or 3' to the gene of interest in the genome). In other embodiments, the polynucleotides of the invention do not contain the coding sequence of more than 1000, 500, 250, 100, 50, 25, 20, 15, 10, 5, 4, 3, 2, or 1 genomic flanking gene(s).

"SEQ ID NO:X" refers to a prostate cancer antigen polynucleotide sequence described in Table 1. SEQ ID NO:X is identified by an integer specified in column 1 of Table 1. The polypeptide sequence SEQ ID NO:Y is a translated open reading frame (ORF) encoded by polynucleotide SEQ ID NO:X. There are 940 prostate cancer antigen polynucleotide sequences described in Table 1 and shown in the sequence listing (SEQ ID NO:1 through SEQ ID NO:940). Likewise there are 940 polypeptide sequences shown in the sequence listing, one polypeptide sequence for each of the polynucleotide sequences (SEQ ID NO:941 through SEQ ID NO:1880). The polynucleotide sequences are shown in the sequence listing immediately followed by all of the polypeptide sequences. Thus, a polypeptide sequence corresponding to polynucleotide sequence SEQ ID NO:1 is the first polypeptide sequence shown in the sequence listing. The second polypeptide sequence corresponds to the polynucleotide sequence shown as SEQ ID NO:2, and so on. In otherwords, since there are 940 polynucleotide sequences, for any polynucleotide sequence SEQ ID NO:X, a corresponding polypeptide SEQ ID NO:Y can be determined by the formula X + 940 = Y. In addition, any of the unique "Sequence/Contig ID" defined in column 2 of Table 1, can be linked to the corresponding polypeptide SEQ ID NO:Y by reference to Table 4.

The polypeptides of the present invention can be composed of amino acids joined to each other by peptide bonds or modified peptide bonds, i.e., peptide isosteres, and may contain amino acids other than the 20 gene-encoded amino acids. The polypeptides may be modified by either natural processes, such as posttranslational processing, or by chemical modification techniques which are well known in the art. Such modifications

are well described in basic texts and in more detailed monographs, as well as in a voluminous research literature. Modifications can occur anywhere in a polypeptide, including the peptide backbone, the amino acid side-chains and the amino or carboxyl termini. It will be appreciated that the same type of modification may be present in the same or varying degrees at several sites in a given polypeptide. Also, a given polypeptide may contain many types of modifications. Polypeptides may be branched, for example, as a result of ubiquitination, and they may be cyclic, with or without branching. Cyclic, branched, and branched cyclic polypeptides may result from posttranslation natural processes or may be made by synthetic methods. Modifications include acetylation, acylation, ADP-ribosylation, amidation, covalent attachment of flavin, covalent attachment of a heme moiety, covalent attachment of a nucleotide or nucleotide derivative, covalent attachment of a lipid or lipid derivative, covalent attachment of phosphotidylinositol, cross-linking, cyclization, disulfide bond formation, demethylation, formation of covalent cross-links, formation of cysteine, formation of pyroglutamate, formylation, gamma-carboxylation, glycosylation, GPI anchor formation, hydroxylation, iodination, methylation, myristoylation, oxidation, pegylation, proteolytic processing, phosphorylation, prenylation, racemization, selenoylation, sulfation, transfer-RNA mediated addition of amino acids to proteins such as arginylation, and ubiquitination. (See, for instance, PROTEINS - STRUCTURE AND MOLECULAR PROPERTIES, 2nd Ed., T. E. Creighton, W. H. Freeman and Company, New York (1993); POSTTRANSLATIONAL COVALENT MODIFICATION OF PROTEINS, B. C. Johnson, Ed., Academic Press, New York, pgs. 1-12 (1983); Seifter et al., Meth Enzymol 182:626-646 (1990); Rattan et al., Ann NY Acad Sci 663:48-62 (1992).)

The prostate and prostate cancer polypeptides of the invention can be prepared in any suitable manner. Such polypeptides include isolated naturally occurring polypeptides, recombinantly produced polypeptides, synthetically produced polypeptides, or polypeptides produced by a combination of these methods. Means for preparing such polypeptides are well understood in the art.

The polypeptides may be in the form of the secreted protein, including the mature form, or may be a part of a larger protein, such as a fusion protein (see below). It is often advantageous to include an additional amino acid sequence which contains secretory or

leader sequences, pro-sequences, sequences which aid in purification, such as multiple histidine residues, or an additional sequence for stability during recombinant production.

The prostate and prostate cancer polypeptides of the present invention are preferably provided in an isolated form, and preferably are substantially purified. A recombinantly produced version of a polypeptide, including the secreted polypeptide, can be substantially purified using techniques described herein or otherwise known in the art, such as, for example, by the one-step method described in Smith and Johnson, Gene 67:31-40 (1988). Polypeptides of the invention also can be purified from natural, synthetic or recombinant sources using techniques described herein or otherwise known in the art, such as, for example, antibodies of the invention raised against the polypeptides of the present invention in methods which are well known in the art.

By a polypeptide demonstrating a "functional activity" is meant, a polypeptide capable of displaying one or more known functional activities associated with a full-length (complete) protein of the invention. Such functional activities include, but are not limited to, biological activity, antigenicity [ability to bind (or compete with a polypeptide for binding) to an anti-polypeptide antibody], immunogenicity (ability to generate antibody which binds to a specific polypeptide of the invention), ability to form multimers with polypeptides of the invention, and ability to bind to a receptor or ligand for a polypeptide.

"A polypeptide having functional activity" refers to polypeptides exhibiting activity similar, but not necessarily identical to, an activity of a polypeptide of the present invention, including mature forms, as measured in a particular assay, such as, for example, a biological assay, with or without dose dependency. In the case where dose dependency does exist, it need not be identical to that of the polypeptide, but rather substantially similar to the dose-dependence in a given activity as compared to the polypeptide of the present invention (i.e., the candidate polypeptide will exhibit greater activity or not more than about 25-fold less and, preferably, not more than about tenfold less activity, and most preferably, not more than about three-fold less activity relative to the polypeptide of the present invention).

The functional activity of the prostate cancer antigen polypeptides, and fragments, variants derivatives, and analogs thereof, can be assayed by various methods.

For example, in one embodiment where one is assaying for the ability to bind or compete with full-length polypeptide of the present invention for binding to an antibody to the full length polypeptide antibody, various immunoassays known in the art can be used, including but not limited to, competitive and non-competitive assay systems using techniques such as radioimmunoassays, ELISA (enzyme linked immunosorbent assay), "sandwich" immunoassays, immunoradiometric assays, gel diffusion precipitation reactions, immunodiffusion assays, in situ immunoassays (using colloidal gold, enzyme or radioisotope labels, for example), western blots, precipitation reactions, agglutination assays (e.g., gel agglutination assays, hemagglutination assays), complement fixation assays, immunofluorescence assays, protein A assays, and immunoelectrophoresis assays, etc. In one embodiment, antibody binding is detected by detecting a label on the primary antibody. In another embodiment, the primary antibody is detected by detecting binding of a secondary antibody or reagent to the primary antibody. In a further embodiment, the secondary antibody is labeled. Many means are known in the art for detecting binding in an immunoassay and are within the scope of the present invention.

In another embodiment, where a ligand is identified, or the ability of a polypeptide fragment, variant or derivative of the invention to multimerize is being evaluated, binding can be assayed, e.g., by means well-known in the art, such as, for example, reducing and non-reducing gel chromatography, protein affinity chromatography, and affinity blotting. See generally, Phizicky, E., et al., Microbiol. Rev. 59:94-123 (1995). In another embodiment, physiological correlates polypeptide of the present invention binding to its substrates (signal transduction) can be assayed.

In addition, assays described herein (see Examples) and otherwise known in the art may routinely be applied to measure the ability of polypeptides of the present invention and fragments, variants derivatives and analogs thereof to elicit polypeptide related biological activity (either in vitro or in vivo). Other methods will be known to the skilled artisan and are within the scope of the invention.

Prostate and Prostate Cancer Associated Polynucleotides and Polypeptides of the Invention

It has been discovered herein that the polynucleotides described in Table 1 are expressed at significantly enhanced levels in human prostate and/or prostate cancer tissues. Accordingly, such polynucleotides, polypeptides encoded by such polynucleotides, and antibodies specific for such polypeptides find use in the prediction, diagnosis, prevention and treatment of prostate related disorders, including prostate cancer as more fully described below.

Table 1 summarizes some of the polynucleotides encompassed by the invention (including contig sequences (SEQ ID NO:X) and the related cDNA clones) and further summarizes certain characteristics of these prostate and/or prostate cancer associated polynucleotides and the polypeptides encoded thereby.

Table 1

Seq ID No.	Sequence/ Contig ID	Gene Name	Overlap	HGS Nucleotide Start	HGS Nucleotide End	% Identity	% Similarity	Clone ID
1	574130	(AJ223500) nidogen-2 [Homo sapiens] Length = 1375	gnl|PID|e1237850	3	716	87	87	HOECC56
2	637706			3	1025			HJAAT54
3	638162			109	696			HNTMW23
4	684310			10	300			HFXJA96
5	731016	protease [Human endogenous retrovirus K] >sp|P87892|P87892 PROTEASE (FRAGMENT). Length = 334	gnl|PID|e290663	2	370	66	83	HPLBP54
6	827771			188	322			HPFCR50
7	828193	MAGE-3b [Homo sapiens] >gi|533523 MAGE-6 antigen [Homo sapiens] >gnl|PID|d1007417 MAGE-6 protein [Homo sapiens]	gi|499122	237	716	97	97	HMMBI07
8	828194			243	401			HPKAA18
9	828199			2	463			HPJCU04
10	828221	put. LAR preprotein (AA -16 to 1881) [Homo sapiens] >pir|S03841|TDHULK leukocyte antigen-related protein precursor - human Length = 1897	gi|34267	1	1326	100	100	HWHQP39
11	828235			3	248			HWBBB77
12	828236	Gu protein [Homo sapiens] >pir|PC6010|PC6010 RNA helicase Gu - human (fragment) >sp|Q13436|Q13436 NUCLEOLAR RNA HELICASE GU (FRAGMENT). Length = 801	gi|1230564	1	1425	84	84	HWBDP29
13	828237			3	779			HWHPW78

14	828239	(AC002451) pyruvate dehydrogenase kinase isoform 4 [Homo sapiens] >gi|1399197 pyruvate dehydrogenase kinase isoform 4 [Homo sapiens]	gi|2337883	2	433	87	87	HWACS81
15	828242	(AF044321) cytochrome c oxidase assembly protein COX11 [Homo sapiens] >gi|3170264 (AF044321) cytochrome c oxidase assembly protein COX11 [Homo sapiens]	gi|3170264	3	731	100	100	HWBAS37
16	828247	(AF109906) NG22 [Mus musculus] Length = 707	gi|3986770	3	554	39	61	HWBBX45
17	828248	M1 subunit of ribonucleotide reductase [Homo sapiens] >gi|36153 large subunit ribonucleotide reductase [Homo sapiens] >pir|S16680|S16680 ribonucleoside-diphosphate reductase (EC 1.17.4.1) chain M1 - human Length = 792	gi|36065	254	625	82	82	HWBAJ23
18	828250			58	408			HWBBN56
19	828256	put. ribosomal protein L3 (AA 1 - 348) [Homo sapiens] >pir|A27294|R5HUL3 ribosomal protein L3 precursor, mitochondrial - human Length = 348	gi|34754	393	1193	94	94	HUSGZ25
20	828267			3	497			HUSIK57
21	828269			214	492			HUSBF75
22	828272			89	607			HUSYB27
23	828273	(AF047020) alpha-methylacyl-CoA racemase [Homo sapiens] >sp|O43673|O43673 ALPHA-METHYLACYL-COA RACEMASE (EC 5.1.99.4). Length = 380	gi|2896148	300	539	79	89	HULCJ25
24	828290			648	914			HUSGH59
25	828326	Ki antigen [Mus musculus] >gnl|PID|d1029778 (AB007139) PA28 gamma subunit [Mus musculus] >sp|O35563|O35563 KI ANTIGEN. Length = 254	gnl|PID|d1022900	2	970	99	99	HTXJJ72

26	828397			1	942			HLYCG48
27	828405	smooth muscle myosin light chain kinase, smMLCK {C-terminal} [sheep, myometrial tissue, day 127 of gestation, Peptide Partial, 438 aa] [Ovis aries] Length = 438	bbs|175341	37	579	98	100	HLDBK03
28	828461	fra-1 gene product (AA 1-271) [Homo sapiens] >pir|S15750|S15750 transforming protein (fra-1) - human >sp|P15407|FRA1_HUMAN FOS-RELATED ANTIGEN 1. Length = 271	gi|31463	1	873	71	71	HSKEI92
29	828482	Gephyrin [Rattus norvegicus] >pir|JH0681|JH0681 gephyrin - rat >sp|Q03555|GEPH_RAT GEPHYRIN (PUTATIVE GLYCINE RECEPTOR-TUBULIN LINKER PROTEIN). Length = 736	gi|56312	2	940	98	98	HSIGE72
30	828488			64	189			HSDJR78
31	828491			386	586			HSDFC18
32	828492			51	212			HSDGQ64
33	828494			428	733			HSDIC05
34	828496	BS4 peptide [Mus musculus] >sp|P54729|BS4_MOUSE BS4 PROTEIN. Length = 677	gi|863014	3	1097	85	93	HSBAY13
35	828498	14.5 kDa translational inhibitor protein, p14.5 [Homo sapiens] Length = 137	gnl|PID|e1240168	63	500	100	100	HSDXA60
36	828504			173	412			HSAAQ28
37	828507			286	462			HSBCA90
38	828512	CCAAT-box-binding factor [Homo sapiens] >pir|A36368|A36368 transcription factor CBF, CCAAT-binding - human	gi|179969	3	611	82	82	HSAAV04
39	828516	histone H2A [Homo sapiens] >gi|2062704 histone 2A-like protein [Homo sapiens] >gi|2088554 histone 2A-like protein [Homo sapiens]	gnl|PID|e268230	36	458	100	100	HSBAL82

40	828519			142	474			HRGBO34
41	828521	DEAD box-like RNA helicase [Arabidopsis thaliana] >sp|O23251|O23251 DEAD BOX-LIKE RNA HELICASE (FRAGMENT). Length = 450	gnl|PID|e1316345	31	531	38	58	HRGDE67
42	828522	Unknown		361	684			HROBP89
43	828525	cytokine receptor [Homo sapiens] >sp|Q14213|Q14213 CYTOKINE RECEPTOR PRECURSOR.	gi|632974	14	463	99	99	HRGTJ13
44	828529			379	852			HROEB35
45	828530			134	253			HRACZ50
46	828536			84	272			HPYSC02
47	828537			1	270			HPZAA72
48	828539			130	279			HPWDG48
49	828540	ORF_f506 [Escherichia coli] >gi|1789453 (AE000389) aerotaxis sensor receptor, flavoprotein [Escherichia coli]	gi|882594	3	278	100	100	HPWCG66
50	828542			366	626			HRAAA23
51	828543	(AF093263) homer-2a [Homo sapiens] >sp|G3834617|G3834617 HOMER-2A. Length = 343	gi|3834617	3	554	96	97	HPWCS14
52	828544			277	474			HPWDE02
53	828546			1	1302			HPWBZ53
54	828550			61	147			HPWBR44

55	828551			61	585			HPWCG88
56	828553	prostate- specific membrane antigen [Homo sapiens] >pir|A56881|A56881 prostate-specific membrane antigen - human	gi|190664	2	655	95	95	HPWCG57
57	828557	NF-IL6-beta protein [Homo sapiens] >pir|A40225|A40225 transcription activator NF-IL6 beta - human Length = 269	gi|189176	3	359	100	100	HPTVR29
58	828560	T-cell receptor (V-J-C) precursor [Homo sapiens] >pir|A26659|A26659 T-cell receptor gamma-I chain C region - human {SUB 138-310} >gi|339080 T cell receptor gamma chain [Homo sapiens] {SUB 139-310} >gi|339089 T-cell receptor gamma-chain constant region [Ho	gi|339400	381	683	100	100	HPWAY42
59	828561	zinc finger protein [Homo sapiens] >pir|S47071|S47071 finger protein HZF3, Krueppel-related - human (fragment)	gi|498725	1	204	96	96	HPWBS62
60	828565			3	962			HPWAZ16
61	828566			1214	1423			HPWAJ41
62	828567			204	440			HPRTP24
63	828568	thyroid receptor interactor [Homo sapiens] Length = 286	gi|703112	2	475	97	100	HPRSB55
64	828569	envelope protein [Woodchuck hepatitis B virus] >pir|A03708|SAVLC2 large surface antigen - woodchuck hepatitis virus (clone 2) Length = 431	gi|336133	204	395	38	47	HPWBR81
65	828570			380	580			HPRTH40
66	828571	DY3.6 [Caenorhabditis elegans] >sp|O45323|O45323 DY3.6 PROTEIN. Length = 379	gnl|PID|e1345081	2	670	27	61	HPRTP80
67	828574	rTSbeta [Homo sapiens] >sp|Q15407|Q15407 RTSBETA. Length = 416	gnl|PID|e189422	3	458	89	89	HPRTS71
68	828575			3	209			HPRTI65

69	828577			135	395			HPRTQ68
70	828578	phospholipase A2 [unidentified] >gi|190887 synovial phospholipase A-2 [Homo sapiens] >gi|190889 synovial phospholipase A-2 (EC 3.1.1.4) [Homo sapiens] >pir|A32862|PSHUYF phospholipase A2 (EC 3.1.1.4) precursor, synovial fluid - human >sp|P14555|PA2M_HUMAN	gi|833246	136	627	89	89	HPFCL59
71	828580			2	340			HPRCS86
72	828581			103	339			HPRSB02
73	828583			258	419			HPRTL26
74	828585	HOXB13 [Homo sapiens] Length = 284	gi|1764090	1	285	100	100	HPRCN60
75	828587	(AF043431) retinoblastoma-interacting protein [Homo sapiens] >sp|O75371|O75371 RETINOBLASTOMA-INTERACTING PROTEIN. Length = 897	gi|3452281	139	534	100	100	HPRCF61
76	828590			120	248			HPRCE51
77	828592	breakpoint cluster region protein [Homo sapiens] >sp|Q12844|Q12844 BREAKPOINT CLUSTER REGION PROTEIN (FRAGMENT). Length = 889	gi|487346	48	611	98	98	HPRCF63
78	828593	XP-G factor [Homo sapiens] >pir|S35993|S35993 DNA repair protein XPGC - human >sp|G303059|G303059 XPGC=DNA REPAIR PROTEIN RAD2 HOMOLOG. {SUB 1166-1186} Length = 118	gi|298111	1	1272	87	87	HPRTJ39
79	828594			84	353			HPRCM59
80	828596	homeobox protein [Homo sapiens] >pir|S19010|S19010 homeotic protein PBX3a - human >sp|P40426|PBX3_HUMAN PRE-B-CELL LEUKEMIA TRANSCRIPTION FACTOR-3 (HOMEOBOX PROTEIN PBX3).	gi|35315	1	213	93	93	HPRCH15

		Length = 434						
81	828597	(AL031532) yeast gtr2 homolog, novel small GTPase subfamily protein [Schizosaccharomyces pombe] >sp|O74544|O74544 YEAST GTR2 HOMOLOG, NOVEL SMALL GTPASE SUBFAMILY PROTEIN. Length = 31	gnl|PID|e1319429	1	903	70	85	HPRBB67
82	828598			1	108			HPRAX93
83	828601			2	520			HPRTI75
84	828605			383	601			HPRAY38
85	828608	acid phosphatase [Homo sapiens] Length = 386	gi|189619	21	533	95	96	HPRBF14
86	828609	prostate- specific membrane antigen [Homo sapiens] >pir|A56881|A56881 prostate-specific membrane antigen - human	gi|190664	186	899	100	100	HPRBH58
87	828610	seminal plasma protein precursor [Homo sapiens] >gi|514372 beta-microseminoprotein [Homo sapiens] >gi|825707 prostatic secretory protein (PSP-94) [Homo sapiens]	gi|338415	3	398	100	100	HPRTJ08
88	828617			3	350			HPRAD26
89	828620	prostatic acid phosphatase [Homo sapiens] >gi|189621 acid phosphatase [Homo sapiens] >gi|515997 prostatic acid phosphatase [Homo sapiens]	gi|189613	3	650	94	94	HPRBF16
90	828621			4	126			HPRAG37
91	828622			28	156			HPRAQ51
92	828623			125	313			HPRAG59
93	828625			87	275			HPRAT22
94	828632			68	406			HPQBV63
95	828635			916	1344			HPMGE79

96	828637	(AC005600) PKD1 [Homo sapiens] >sp|O75276|O75276 PKD1 (FRAGMENT). Length = 1339	gi|3522923	1	366	70	71	HPOAB53
97	828639			72	158			HPMDB85
98	828645			2	313			HPJCK50
99	828648	(AF059569) actin binding protein MAYVEN [Homo sapiens] >sp|G3789797|G3789797 ACTIN BINDING PROTEIN MAYVEN. Length = 593	gi|3789797	210	677	32	48	HPJBV55
100	828649	neuropeptide Y [Homo sapiens] >gi|189282 neuropeptide Y [Homo sapiens] >gi|2992498 (AC004485) neuropeptide Y precursor [Homo sapiens]	gi|189274	121	375	100	100	HPWBU56
101	828651	similar to ATPases associated with various cellular activities (AAA);	gnl|PID|e1351769	41	742	51	69	HPJDA05
102	828652			1	189			HPJCY65
103	828655			60	251			HPJBW32
104	828657	(AF061283) neuronal protein 4.1 [Mus musculus] >sp|G3790545|G3790545 NEURONAL PROTEIN 4.1. Length = 879	gi|3790545	38	328	45	67	HPJBD30
105	828660			103	231			HPJCL80
106	828663	calnexin [Homo sapiens] >gi|186523 calnexin [Homo sapiens] >pir|A46673|A46673 calnexin precursor - human >sp|P27824|CALX_HUMAN CALNEXIN PRECURSOR (MAJOR HISTOCOMPATIBILITY COMPLEX CLASS I ANTIGEN-BINDING PROTEIN P88) (P90) (IP90). Length = 592	gi|306481	41	703	87	87	HPJCT42
107	828666			1	246			HPJBI71
108	828668			61	315			HPJBK31
109	828669			1	225			HPJBU60
110	828670			222	350			HPICC36

111	828671	(AJ005866) Sqv-7-like protein [Homo sapiens] >sp|E1360006|E1360006 SQV-7-LIKE PROTEIN (FRAGMENT). Length = 261	gnl|PID|e1360006	3	1025	89	90	HPJAD23
112	828672			1	255			HPICD86
113	828675	MCM4 [Homo sapiens] >sp|G2754697|G2754697 MCM4 (FRAGMENT). Length = 712	gi|2754697	2	2173	99	99	HPJBZ66
114	828677			113	268			HPICC05
115	828678	SNAP43 [Homo sapiens] >gi|1174203 PSE-binding factor PTF gamma subunit [Homo sapiens] >pir|JC6081|JC6081 proximal sequence element-binding transcription factor gamma chain - human >sp|Q16533|Q16533 PSE-BINDING FACTOR PTF GAMMA SUBUNIT. Length = 368	gi|623244	2	664	98	98	HPJAA76
116	828679			142	318			HPJAC93
117	828680	DNA primase (subunit p48) [Homo sapiens] >pir|S45630|S45630 DNA primase chain p48 - human >sp|P49642|PRI1_HUMAN DNA PRIMASE SMALL SUBUNIT (EC 2.7.7.-) (DNA PRIMASE 49 KD SUBUNIT) (P49). >gi|2353692 DNA primase 1 [Homo sapiens] {SUB 97-146} Length = 420	gi|510406	74	652	100	100	HPICG94
118	828681			3	167			HPJAA30
119	828682			3	617			HPIBM51
120	828683			54	329			HPIBR22
121	828686	(AF006010) progestin induced protein [Homo sapiens] >sp|G4101695|G4101695 PROGESTIN INDUCED PROTEIN. Length = 2796	gi|4101695	2	886	95	97	HPIBQ56
122	828687			27	131			HPIBS12

123	828688	CCAAT-box DNA binding protein subunit NF-YB [Homo sapiens] >sp|P25208|CBFA_HUMAN CCAAT-BINDING TRANSCRIPTION FACTOR SUBUNIT A (CBF-A) (NF-Y PROTEIN CHAIN B) (NF-YB) (CAAT-BOX DNA BINDING PROTEIN SUBUNIT B).	gi|189199	128	757	100	100	HPJAA20
124	828689	creatine kinase [Homo sapiens] >pir|A31431|A30789 creatine kinase (EC 2.7.3.2) precursor, mitochondrial - human >sp|P12532|KCRU_HUMAN CREATINE KINASE, UBIQUITOUS MITOCHONDRIAL PRECURSOR (EC 2.7.3.2) (U- MTCK) (MIA-CK) (ACIDIC-TYPE MITOCHONDRIAL CREATINE K	gi|180590	227	1222	84	84	HPICC13
125	828692	(AJ223301) aralkyl acyl-CoA:amino acid N-acyltransferase [Bos taurus] >gi|2865607 (AF045032) aralkyl acyl-CoA:amino acid N-acyltransferase [Bos taurus] >sp|O46686|O46686 ARALKYL ACYL-COA:AMINO ACID N-ACYLTRANSFERASE (EC 2.3.1.13) (GLYCINE N-ACYLTRANSFERAS	gnl|PID|e1248977	278	1000	49	70	HPIBO30
126	828693	dJ14O9.2 (Melanoma-Associated Antigen MAGE LIKE) [Homo sapiens] >sp|O76058|O76058 DJ14O9.2 (MELANOMA-ASSOCIATED ANTIGEN MAGE LIKE). Length = 606	gnl|PID|e1311294	1	426	45	69	HPIBL27
127	828694			1	333			HPIBY69
128	828696			171	347			HPIBA33

129	828697	kynurenine/alpha-aminoadipate aminotransferase [Rattus norvegicus] >sp|Q64602|Q64602 KYNURENINE/ALPHA-AMINOADIPATE AMINOTRANSFERASE (EC 2.6.1.7) (KYNURENINE--OXOGLUTARATE AMINOTRANSFERASE) (KYNURENINE AMINOTRANSFERASE). Length = 425	gi|1050752	258	422	61	72	HPICB03
130	828699			3	1109			HPIBL48
131	828702	prostate- specific membrane antigen [Homo sapiens] >pir|A56881|A56881 prostate-specific membrane antigen - human >bbs|164191 prostate-specific membrane antigen,	gi|190664	118	744	76	78	HPIAZ02
132	828703			285	689			HPIBB96
133	828704	put. DNA topoisomerase I (AA 1-864) [Escherichia coli] >gnl|PID|d1015527 DNA topoisomerase I (EC 5.99.1.2) (w-protein) (Relaxing enzyme) (Untwisting enzyme) (Swivelase). [Escherichia coli]	gi|415338	2	406	98	98	HPIBH30
134	828706	mitotic centromere-associated kinesin [Homo sapiens] >sp|Q99661|Q99661 MITOTIC CENTROMERE-ASSOCIATED KINESIN. Length = 725	gi|1695882	559	1788	98	98	HPIBJ11
135	828708			2	589			HPIAW81
136	828711			1	93			HPIAZ32
137	828712			49	309			HPIAU16
138	828713			142	396			HPIAV37
139	828714			68	1849			HPIAV20
140	828715			174	356			HPIAS34
141	828718	ipa-6d gene product [Bacillus subtilis] >gnl|PID|e1186348 alternate gene name: ipa-6d; similar to quinone biosynthesis [Bacillus subtilis]	gi|413930	403	1308	35	57	HPIAL41

142	828723	UDP glucuronosyltransferase precursor [Homo sapiens] >pir|A48633|A48633 dihydrotestosterone/androstanediol UDP-glucuronosyltransferase isoform 3, udpgth-3 - human	gi|475759	3	206	97	100	HPIAL34
143	828726	hydrophobic membrane-bound protein [Escherichia coli] >gi|1147818 part of a molybdenum periplasmic binding protein dependent transport system [Escherichia coli] >gi|973215 ModB [Escherichia coli]	gi|504499	1	255	98	98	HPIAS69
144	828728	(AF044954) NADH:ubiquinone oxidoreductase PDSW subunit [Homo sapiens] >gi|4165091 (AF088991) NADH-ubiquinone oxidoreductase PDSW subunit [Homo sapiens] Length = 172	gi|4164442	1	498	84	86	HPIAS40
145	828730	MAK11 protein [Saccharomyces cerevisiae] >gi|486013 ORF YKL021c [Saccharomyces cerevisiae] >pir|A29938|A29938 MAK11 protein - yeast (Saccharomyces cerevisiae) >sp|P20484|MK11_YEAST MAK11 PROTEIN. Length = 468	gi|171877	394	1569	34	64	HPHAF82
146	828732	rab geranylgeranyl transferase [Homo sapiens] >pir|JC5538|JC5538 Rab geranylgeranyl transferase (EC 2.5.1.-) alpha chain - human >sp|E1256376|E1256376 RAB GERANYLGERANYL TRANSFERASE. Length = 567	gnl|PID|e1256376	155	868	97	97	HPIAN07
147	828733			202	438			HPIAK81
148	828735	(AF006265) cancer associated surface antigen [Homo sapiens] >gnl|PID|d1023440 (AB007619) EBAG9 [Homo sapiens] >sp|O00559|O00559 CANCER ASSOCIATED SURFACE ANTIGEN. Length = 213	gi|2213934	369	1139	90	90	HPIAE30

149	828736			1	132			HPFEA11
150	828739			60	347			HPIAA46
151	828740			2	394			HPIAC69
152	828742			2	475			HPHAB61
153	828748	glandular kallikrein precursor [Homo sapiens] >pir|A29586|A29586 tissue kallikrein (EC 3.4.21.35) hGK-1 precursor - human >sp|P20151|KLK2_HUMAN GLANDULAR KALLIKREIN 2 PRECURSOR (EC 3.4.21.35) (TISSUE KALLIKREIN) (PROSTATE) (HGK-1). Length = 261	gi|386842	3	707	95	96	HPEAB20
154	828749	serine/threonine kinase [Rattus norvegicus] >sp|O08678|O08678 SERINE/THREONINE KINASE. Length = 793	gnl|PID|e290956	443	826	94	99	HPIAA79
155	828752	androgen regulated homeobox protein [Homo sapiens] >sp|Q99801|HK31_HUMAN HOMEOBOX PROTEIN NKX-3.1. Length = 234	gi|1732378	1051	1692	99	99	HPIAA91
156	828753			2	187			HPFEA08
157	828754			423	566			HPFDD83
158	828757			2	409			HPFDI21
159	828761			3	113			HPFDE61
160	828762			3	317			HPFDE33
161	828764	cytochrome c oxidase subunit VIc preprotein [Homo sapiens] >gi|3859868 (AF067637) cytochrome c oxidase subunit VIc [Homo sapiens]	gnl|PID|e223120	51	329	100	100	HPMSI48
162	828765			3	80			HPFDB49
163	828766			90	242			HPFDT61
164	828767			797	937			HPWDK71
165	828768			1109	1324			HPFDD04
166	828770			156	392			HPFDF79

167	828771	(AF001629) WASP interactor protein [Homo sapiens] >sp|G4100621|G4100621 WASP INTERACTOR PROTEIN (FRAGMENT). Length = 328	gi|4100621	1	273	55	61	HPFDS50
168	828772			200	340			HPFDT28
169	828773			115	348			HPFDE85
170	828775			23	208			HPFCR19
171	828776			3	134			HPFCY40
172	828777			131	919			HPFDM39
173	828778			2	121			HPFCZ89
174	828780			46	420			HPFDA70
175	828781			408	734			HPFCP06
176	828782			61	186			HPFDI40
177	828783	relaxin [Homo sapiens] >gi|490063 H1-relaxin [Homo sapiens] >gi|412167 relaxin [Homo sapiens] >gi|512431 preprorelaxin [Homo sapiens] >gi|35933 prepro-relaxin H1 [Homo sapiens]	gi|490056	68	253	70	70	HPFCH80
178	828784			82	321			HPFCT79
179	828785			32	250			HPFCX77
180	828786			302	532			HPFCT31
181	828788			341	538			HPFCI59
182	828790			195	317			HPFCT53
183	828791			6	140			HPFCI14
184	828792			121	801			HPFCC91
185	828794			1219	1440			HPFCJ56
186	828797			128	259			HPFCC42
187	828798			237	350			HPFCI76
188	828799			113	322			HPFAA95
189	828801			90	239			HPEAG41
190	828802			165	392			HPFCL26

191	828803	(AB022017) AMP-activated protein kinase alpha-1 [Homo sapiens] >sp|D1037533|D1037533 AMP-ACTIVATED PROTEIN KINASE ALPHA-1. >gnl|PID|e315274 AMP-activated protein kinase alpha-1 [Homo sapiens] {SUB 294-550}	gnl|PID|d1037533	96	458	83	83	HPFBA83
192	828804			98	286			HPEAC32
193	828805			166	303			HPFCF17
194	828807			1	195			HPFCF96
195	828809			147	236			HPEAC52
196	828810			1	153			HPEBT31
197	828811			283	426			HPFAA06
198	828817			2	160			HPCAC47
199	828818			1	258			HPEAA76
200	828819			345	623			HPEBG44
201	828820			314	502			HPEAB80
202	828821			246	416			HPCAF64
203	828823	spore coat protein SP87 [Dictyostelium discoideum] Length = 677	gi|915203	267	875	44	61	HPEAB79
204	828824			458	643			HPCAC56
205	828825			132	446			HPDDY72
206	828826			2	730			HPCAN60
207	828829			499	672			HPCAO54
208	828830	Arnt [Homo sapiens] >pir|I59550|I59550 Arnt - human >sp|P27540|ARNT_HUMAN ARYL HYDROCARBON RECEPTOR NUCLEAR TRANSLOCATOR (ARNT PROTEIN) (DIOXIN RECEPTOR, NUCLEAR TRANSLOCATOR) (HYPOXIA-INDUCIBLE FACTOR 1 BETA) (HIF-1 BETA). Length = 789	gi|179004	1	219	90	92	HPCAA27
209	828833			42	278			HPCAB16
210	828835			61	474			HOUDC43

211	828838	chordin [Xenopus laevis] >pir|A55195|A55195 chordin precursor - African clawed frog >sp|Q91713|CHRD_XENLA CHORDIN PRECURSOR (ORGANIZER-SPECIFIC SECRETED DORSALIZING FACTOR). Length = 941	gi|603945	2	1468	43	56	HPCAO32
212	828840			536	679			HOVCJ65
213	828845			69	212			HOSDG69
214	828846			3	1034			HSPBQ12
215	828847			36	395			HPEAA46
216	828849	(AF041474) BAF53a [Homo sapiens] >sp|G4001803|G4001803 BAF53A. Length = 429	gi|4001803	62	1468	100	100	HOVCJ86
217	828850	putative [Homo sapiens] >pir|A49364|A49364 59 protein, brain - human (fragment) >sp|Q09019|DMR9_HUMAN DMR-N9 PROTEIN (PROTEIN 59) (FRAGMENT). Length = 553	gi|306712	2	283	97	97	HOUCP33
218	828852			96	437			HOSAZ63
219	828853	(AC004449) R33683_3 [Homo sapiens] >sp|O60372|O60372 R33683_3 (FRAGMENT). Length = 103	gi|2979531	1	465	40	62	HOSAV36
220	828857	uridine kinase [Mus musculus] Length = 260	gi|471981	3	1013	74	88	HOQBM19
221	828861			2	991			HPEAE55
222	828866	enhancer of filmentation 1 [Homo sapiens] >gi|1490787 Crk-associated substrate related protein Cas-L [Homo sapiens] >sp|Q14511|Q14511 ENHANCER OF FILMENTATION 1. Length = 834	gi|1280212	143	637	100	100	HOHBF14
223	828872	pericentriol material 1 [Homo sapiens] >pir|A54103|A54103 centrosome autoantigen PCM-1 - human >sp|Q15154|Q15154	gi|450277	295	879	93	94	HOHAL47

		PERICENTRIOL MATERIAL 1. Length = 2024						
224	828874	histone H1(0) (aa 1-194) [Homo sapiens] >pir|A24850|HSHU10 histone H1-0 - human >sp|P07305|H10_HUMAN HISTONE H1' (H1.0) (H1(0)). {SUB 2-194} Length = 194	gi|32107	3	902	82	82	HOGBL72
225	828875	myosin VI [Homo sapiens] >sp|G2304981|G2304981 MYOSIN VI. Length = 1262	gi|2304981	1	450	99	99	HOGCC24
226	828877	75 kDa subunit NADH dehydrogenase precursor [Homo sapiens] >pir|S17854|S17854 NADH dehydrogenase (ubiquinone) (EC 1.6.5.3) 75K chain precursor - human	gi|38079	24	275	95	97	HOFMJ67
227	828878	S-adenosylmethionine decarboxylase proenzyme (EC 4.1.1.50) old gene name 'AMD' [Homo sapiens] >pir|A31786|DCHUDM adenosylmethionine decarboxylase (EC 4.1.1.50) precursor - human	gi|178518	282	1325	95	95	HOGCO89
228	828879			2	271			HOEJI17
229	828881			139	969			HOGAF39
230	828885	product possesses binding site dependent transcriptional suppressing activity [Homo sapiens] >pir|A44351|A44351 transcription repressor E4BP4 - human >sp|Q14211|Q14211 E4BP4 GENE. Length = 462	gi|30956	173	1639	94	95	HOEEC58
231	828886			82	228			HODGT65
232	828887	ZNF127-Xp [Homo sapiens] >sp|Q13434|Q13434 ZNF127-XP. Length = 485	gi|1304599	2	1327	56	76	HOECN41

233	828889	neurofibromin [Homo sapiens] >sp|P21359|NF1_HUMAN NEUROFIBROMIN (NEUROFIBROMATOSIS-RELATED PROTEIN NF-1). >gi|736765 neurofibromatosis 1 [Homo sapiens] {SUB 751-1611} >gi|189161 neurofibromatosis protein type 1 [Homo sapiens] {SUB 1168-1566}	gi|292354	265	690	89	89	HODAQ30
234	828891	FAST kinase [Homo sapiens] >pir|I37386|I37386 FAST kinase - human >sp|Q14296|Q14296 FAST KINASE. Length = 549	gi|1006659	84	1238	100	100	HODDG78
235	828899			3	344			HNWAA42
236	828907			3	566			HNTSS75
237	828911			1217	1501			HNTMC68
238	828914	MAP KINASE-ACTIVATED PROTEIN KINASE 2 (EC 2.7.1.-) (MAPK-ACTIVATED PROTEIN KINASE 2) (MAPKAP KINASE 2) (MAPKAPK-2). Length = 400	sp|P49137|MKK2_HUMAN	586	1176	98	99	HNTRL23
239	828917	zinc finger protein 7 (ZFP7) [Homo sapiens] >pir|A34612|A34612 zinc finger protein ZNF7 - human Length = 686	gi|340446	790	1536	57	70	HNTCR38
240	828921	RNA helicase [Homo sapiens] >pir|S71758|S71758 DEAD box protein MrDb, Myc-regulated - human >sp|Q92732|Q92732 RNA HELICASE. Length = 610	gnl|PID|e254454	123	1253	90	90	HNTRO07
241	828922			138	1403			HNTAB76
242	828924	(AE000180) biotin synthesis, sulfur insertion? [Escherichia coli] >gi|490219 BIOB gene product [Escherichia coli] >gnl|PID|e305036 BIOTIN SYNTHASE [Escherichia coli] >pir|JC2517|SYECBB biotin synthetase (EC 2.8.1.-) - Escherichia coli	gi|1786992	1	78	95	95	HNHAG14

>sp|P12996|BIOB_ECOL

243	828925			376	426			HNGKM39
244	828926			28	522			HNTBH70
245	828928			1	330			HNGNK23
246	828930	casein kinase I-alpha [Homo sapiens] >pir|A57011|A57011 casein kinase I-alpha - human Length = 337	gi|852055	412	1467	89	91	HNFJH94
247	828935	(AL021366) cICK0721Q.3 (Kinesin related protein) [Homo sapiens] >sp|O60887|O60887 CICK0721Q.3 (KINESIN RELATED PROTEIN). >gnl|PID|e1332987 (AJ010479) kinesin-like protein [Homo sapiens] {SUB 1-274} Length = 673	gnl|PID|e1330109	2	1447	86	86	HNTRL26
248	828937	apurinic/apyrimidinic endonuclease [Homo sapiens] >gi|183780 apurinic/apyrimidinic endonuclease [Homo sapiens] >gi|32022 AP endonuclease 1 [Homo sapiens] >bbs|111437 Ref-1=redox factor [human, Peptide, 318 aa] [Homo sapiens] >pir|S23550|S23550 DNA-(apurin	gi|178747	124	1158	95	95	HNTNM15
249	828940	pol polyprotein - Moloney murine leukemia virus (strain 3-1R) (fragment) Length = 559	pir|A46311|A46311	1399	1806	58	71	HNGGG72
250	828942			3	386			HNFHK65

251	828943	rapamycin binding protein [Homo sapiens] >gi|182644 FK506-binding protein 25 [Homo sapiens] >pir|JQ1522|JQ1522 peptidylprolyl isomerase (EC 5.2.1.8) FKBP3 - human >sp|Q00688|FKB3_HUMAN RAPAMYCIN-SELECTIVE 25 KD IMMUNOPHILIN (FKBP25) (PEPTIDYL-PROLYL CIS-T	gi|182626	3	710	100	100	HMWHS08
252	828946	hepatitis delta antigen interacting protein A [Homo sapiens] >sp|Q15834|Q15834 HEPATITIS DELTA ANTIGEN INTERACTING PROTEIN A. Length = 202	gi|1488314	118	729	66	66	HMWHE39
253	828947			199	396			HMWIM20
254	828956	(AF029071) p52 pro-apototic protein [Gallus gallus] Length = 465	gi|2599492	470	1384	74	86	HMWGG82
255	828958			1	306			HMWBS21
256	828965	pterin-4a-carbinolamine dehydratase [Homo sapiens] >gi|848987 pterin-4a-carbinolamine dehydratase [Homo sapiens] >gnl|PID|e1292435 (AJ005542) dimerization cofactor of HNF1; pterin-4a-carbinolamin dehydratase [Rattus norvegicus] >gnl|PID|e1292435 (AJ005542	gi|848985	2	370	100	100	HMWED17
257	828969	Ran-BP1(Ran-binding protein 1) [Homo sapiens] Length = 200	gnl|PID|d1007847	2	742	91	91	HMWFM25
258	828971			574	753			HMVAJ71
259	828973	similar to leucyl-tRNA synthetase;	gnl|PID|e1344085	85	678	74	88	HMUBQ39
260	828980	acidic 82 kDa protein [Homo sapiens] >pir|G01522|G01522 acidic 82 kDa protein - human >sp|Q12987|Q12987 ACIDIC 82 KDA PROTEIN. Length = 736	gi|558458	3	524	88	88	HMTME58

261	828984	high mobility group box [Homo sapiens] >pir|A41976|A41976 structure-specific recognition protein, SSRP1 - human Length = 709	gi|184242	322	2388	97	97	HMUAQ01
262	828985			734	928			HMSGL25
263	828988	Similarity to Yeast MSP1 protein (TAT-binding homolog 4) (SW:MSP1_YEAST) [Caenorhabditis elegans] >sp|P54815|MSP1_CAEEL MSP1 PROTEIN HOMOLOG. Length = 357	gnl|PID|e1347884	1	1137	79	88	HMUBL18
264	828993			78	308			HMTMB67
265	828995			653	1567			HMSIV02
266	829000			296	478			HMMBW26
267	829005			1	531			HMQAI48
268	829009	GTP-binding protein [Homo sapiens] >sp|O43824|O43824 GTP-BINDING PROTEIN. Length = 442	gnl|PID|e1227622	64	927	88	88	HMQAI69
269	829010	(AF035537) DNA polymerase zeta [Homo sapiens] Length = 3052	gi|2665742	282	1262	93	93	HMSGH89
270	829012	ribophorin II precursor - human Length = 631	pir|B26168|B26168	161	2188	94	95	HMSJH16
271	829013			1339	1506			HMIAX25
272	829019			41	223			HMIAJ48
273	829020	similar to WD domain, G-beta repeats (2 domains);	gnl|PID|e1345001	21	800	60	77	HMELR71
274	829021			356	640			HMIAJ26
275	829026	RIZ [Homo sapiens] >sp|Q13029|Q13029 ZINC FINGER PROTEIN RIZ. >pir|I38902|I38902 retinoblastoma-binding protein RIZ - human {SUB 3-1721} Length = 1721	gi|3645905	89	1183	87	87	HMELM45

276	829030	chaperonin-like protein [Homo sapiens] >pir|S48087|S48087 t-complex-type molecular chaperone CCT6 - human >gi|184462 chaperonin-like protein [Homo sapiens] {SUB 143-531} Length = 531	gi|517065	1	1674	95	95	HMICQ08
277	829035	(AF082516) I-1 receptor candidate protein [Homo sapiens] >sp|G3462807|G3462807 I-1 RECEPTOR CANDIDATE PROTEIN. >gi|3493225 (AF058290) imidazoline receptor antisera-selected protein [Homo sapiens] {SUB 469-1063} Length = 1504	gi|3462807	2	679	98	98	HMEFK17
278	829041	pyrroline-5-carboxylate reductase [Homo sapiens] >pir|A41770|A41770 pyrroline-5-carboxylate reductase (EC 1.5.1.2) - human >sp|P32322|PROC_HUMAN PYRROLINE-5-CARBOXYLATE REDUCTASE (EC 1.5.1.2) (P5CR) (P5C REDUCTASE). Length = 319	gi|189498	268	1032	99	100	HMEIQ04
279	829045			2	1771			HMEKR35
280	829048			115	1467			HMEJC44
281	829051			2	256			HMEBI38
282	829052			795	1154			HMHBD67
283	829057			116	799			HMEAF61
284	829058			3	536			HMEER28
285	829059			310	501			HMDAQ69
286	829061			3	101			HMCFX82
287	829062	(AF095791) TACC2 protein [Homo sapiens] >sp|G3777596|G3777596 TACC2 PROTEIN (FRAGMENT). Length = 653	gi|3777596	1417	2622	50	71	HMCGK90
288	829063	kinesin-like DNA binding protein KID - human Length = 665	pir|S62328|S62328	58	1437	83	84	HMEFH72
289	829064			2	718			HMADG63

290	829066	37KD protein, similar to YI22-ECOLI [Escherichia coli] >sp|Q47535|Q47535 37KD PROTEIN, SIMILAR TO YI22-ECOLI. Length = 424	gnl|PID|d1013520	600	1427	98	98	HMAHX38
291	829068	(AF037204) RING zinc finger protein [Homo sapiens] >gi|3387925 (AF070558) RING zinc finger protein RZF [Homo sapiens] >sp|O43567|O43567 RING ZINC FINGER PROTEIN. Length = 381	gi|2746333	432	1319	84	84	HMSH92
292	829069			1	207			HLYET39
293	829074			1	1269			HLYDE91
294	829077			181	873			HLYFD84
295	829078	topoisomerase I [Homo sapiens] >gi|473581 DNA topoisomerase I [Homo sapiens] {SUB 5-765} >gnl|PID|e1312191 (AL022394) dJ511B24.1 (Topoisomerase I) [Homo sapiens] {SUB 437-765} Length = 765	gi|339804	2	907	69	78	HLYCP31
296	829079			194	382			HLYBT93
297	829085	putative ATP/GTP-binding protein [Homo sapiens] >sp|Q92989|Q92989 PUTATIVE ATP/GTP-BINDING PROTEIN. Length = 425	gi|1644402	67	783	93	93	HMCEJ41
298	829093	26S proteasome-associated pad1 homolog [Homo sapiens] >sp|O00487|O00487 26S PROTEASOME-ASSOCIATED PAD1 HOMOLOG. Length = 310	gi|1923256	307	1251	100	100	HLYAN96
299	829099	alpha-L-fucosidase precursor (EC 3.2.1.5) [Homo sapiens] >pir|A33427|HWHUFA alpha-L-fucosidase (EC 3.2.1.51) I precursor, tissue - human >gnl|PID|e34843 alpha-L-fucosidase [Homo sapiens] {SUB 357-393} Length = 461	gi|178409	2	850	96	96	HLTDK55
300	829101	protein tyrosine phosphatase [Homo sapiens] Length = 415	gi|804750	3	542	100	100	HLYAP23

301	829102	!!!! ALU SUBFAMILY SQ WARNING ENTRY !!!! Length = 593	sp|P39194|ALU7_HUMAN	3	59	84	94	HLTEO83
302	829103			265	663			HLWAC24
303	829104			316	525			HLWAX30
304	829109			3	155			HLTCF21
305	829111			1	333			HLTGS92
306	829115			2	670			HLTHA72
307	829116			104	265			HLQDA07
308	829119			144	374			HLMCG37
309	829120			611	910			HLTGP61
310	829121			558	698			HLQCN32
311	829123	aldehyde oxidase [Homo sapiens] >pir|A49634|A49634 aldehyde oxidase (EC 1.2.3.1) - human >sp|Q06278|ADO_HUMAN ALDEHYDE OXIDASE (EC 1.2.3.1). Length = 1338	gi|438656	7	585	99	99	HLQDA57
312	829126			2	154			HLQCX53
313	829135	beta-D-galactosidase precursor (EC 3.2.1.23) [Homo sapiens] >gi|179423 beta-galactosidase precursor (EC 3.2.1.23) [Homo sapiens] >pir|A32688|A32611 beta-galactosidase (EC 3.2.1.23) precursor - human	gi|179401	3	2090	98	98	HLQAM57
314	829136	(AJ005458) protein Phosphatase 2C beta [Bos taurus] >sp|O62830|O62830 PROTEIN PHOSPHATASE 2C BETA (EC 3.1.3.16). Length = 387	gnl|PID|e1287413	55	1254	95	96	HLTHS28

315	829138	cytochrome b5 [Homo sapiens] >pir|A28936|CBHU5 cytochrome b5, microsomal form - human >sp|P00167|CYB5_HUMAN CYTOCHROME B5. {SUB 2-134} >gi|181229 cytochrome b5 [Homo sapiens] {SUB 87-134} Length = 134	gi|181227	35	499	89	89	HLHTN31
316	829142	(AF016509) oxidoreductase [Homo sapiens] >sp|O14756|O14756 OXIDOREDUCTASE. Length = 317	gi|2338748	2	1135	99	99	HLIBJ28
317	829148			55	279			HLHDP51
318	829149	protein kinase C iota [Homo sapiens] >gi|598225 protein kinase C iota [Homo sapiens] >pir|A49509|A49509 protein kinase C (EC 2.7.1.-) iota - human	gi|432274	1	783	99	100	HLICD11
319	829156	ORF YDL063c [Saccharomyces cerevisiae] >pir|S67598|S67598 probable membrane protein YDL063c - yeast (Saccharomyces cerevisiae)	gnl|PID|e253210	3	347	82	83	HLHCD19
320	829162	(AF019767) zinc finger protein [Homo sapiens] >sp|O75312|O75312 ZINC FINGER PROTEIN. Length = 459	gi|3510462	3	890	88	89	HLGDA89
321	829170			2	160			HLDBY56
322	829177	complement factor B [Homo sapiens] >gi|2347133 (AF019413) complement factor B [Homo sapiens] >gi|553536 MHC factor B [Homo sapiens] {SUB 339-509} Length = 764	gi|291922	1	600	86	87	HLDBN31
323	829179			518	847			HL2AG36

324	829184	CDC2 polypeptide (CDC2) (AA 1-297) [Homo sapiens] >gi|29841 CDC2 protein (AA 1-297) [Homo sapiens] >pir|A29539|A29539 protein kinase (EC 2.7.1.37) cdc2 - human >sp|P06493|CC2_HUMAN CELL DIVISION CONTROL PROTEIN 2 HOMOLOG (EC 2.7.1.-) (P34 PROTEIN KINASE)	gi|29839	553	1005	98	98	HL1BD94
325	829185			77	295			HL2AH06
326	829188	M-phase phosphoprotein 4 [Homo sapiens] >sp|Q99545|Q99545 M-PHASE PHOSPHOPROTEIN 4 (FRAGMENT). Length = 611	gnl|PID|e248491	282	1238	92	92	HLAAB63
327	829190	(AF038869) eukaryotic initiation factor 4E-binding protein 3 [Homo sapiens] >sp|O60516|O60516 EUKARYOTIC INITIATION FACTOR 4E-BINDING PROTEIN 3. Length = 100	gi|3169393	3	359	87	87	HL2AG38
328	829193	protein kinase [Homo sapiens] >pir|S34130|S34130 serine/threonine-specific protein kinase PLK (EC 2.7.1.-) - human >sp|P53350|PLK1_HUMAN SERINE/THREONINE-PROTEIN KINASE PLK (EC 2.7.1.-) (PLK-1) (SERINE- THREONINE PROTEIN KINASE 13) (STPK13). Length = 603	gi|312998	2	988	94	94	HL4AF38
329	829196			1	432			HL1AR10
330	829197	TAK1 binding protein [Homo sapiens] >sp|Q15750|Q15750 TAK1 BINDING PROTEIN. Length = 504	gi|1401126	1	252	75	76	HL1BM07
331	829202	(AF060502) peroxisome assembly protein PEX10 [Homo sapiens] >sp|O60683|PEXA_HUMAN PEROXISOME ASSEMBLY PROTEIN PEX10 (PEROXIN-10). Length = 326	gi|3170653	97	465	92	94	HL1AY04

332	829203			1	258			HL1AL88
333	829209			127	342			HL2AF80
334	829210			148	315			HL1AG80
335	829214	cyclin G2 [Homo sapiens] >gi|1236915 cyclin G2 [Homo sapiens] >sp|Q16589|Q16589 CYCLIN G2. Length = 344	gi|1236235	2	484	74	74	HKMSB51
336	829215			29	175			HL1AG81
337	829219			24	290			HL1AG22
338	829220			68	664			HKMMC06
339	829222	(AF016371) U-snRNP-associated cyclophilin [Homo sapiens] >gi|3647230 (AF036331) cyclophilin [Homo sapiens] >sp|O43447|O43447 U-SNRNP-ASSOCIATED CYCLOPHILIN (EC 5.2.1.8). Length = 177	gi|2708309	1	549	100	100	HKGBU67
340	829223			2	187			HL1AC64
341	829225	probable transposase - human transposable element MER37 >pir|S72486|S72486 putative transposase - human transposon MER37 (fragment) {SUB 177-349} Length = 454	pir|S72481|S72481	1607	1720	80	87	HNEBF88
342	829226	pre-B cell enhancing factor [Homo sapiens] >pir|A55927|A55927 pre-B cell enhancing factor - human >sp|P43490|PBEF_HUMAN PRE-B CELL ENHANCING FACTOR PRECURSOR. Length = 491	gi|404013	186	1730	97	97	HKMMZ30
343	829227			285	548			HKIYE27
344	829231			42	92			HKMME67
345	829232	cyclin A [Homo sapiens] >gi|510604 cyclin A [Homo sapiens] >pir|S08277|S08277 cyclin A - human >sp|P20248|CG2A_HUMAN G2/MITOTIC-SPECIFIC CYCLIN A. Length = 432	gi|30307	2	1546	94	95	HKGDC59
346	829233			123	446			HKGBH49

347	829239			141	782			HKFBA66
348	829240			144	347			HKGAB62
349	829242	palmitoyl-protein thioesterase [Homo sapiens] >gi|1314355 palmitoyl protein thioesterase [Homo sapiens] >gi|2465725 (AF022211) palmitoyl-protein thioesterase [Homo sapiens] >sp|P50897|PPT_HUMAN PALMITOYL-PROTEIN THIOESTERASE PRECURSOR (EC 3.1.2.22) (PALMI	gi|1160967	2	955	100	100	HKHAK14
350	829246			68	424			HKAFK34
351	829250			169	309			HKAJW63
352	829253			158	982			HKAHA61
353	829256	(AF094583) putative HIV-1 infection related protein [Homo sapiens] >sp|G3885931|G3885931 PUTATIVE HIV-1 INFECTION RELATED PROTEIN (FRAGMENT). Length = 129	gi|3885931	1043	1831	89	89	HKAFL67
354	829263	histone H4 [Tigriopus californicus] >gi|297562 histone H4 [Chironomus thummi] >gi|7084 histone H4 gene product [Chironomus thummi] >gi|7440 histone H4 [Drosophila hydei] >gnl|PID|e242831 histone H4 [Drosophila hydei] >gnl|PID|e242923 histone H4 [Drosophil	gi|10616	2	361	98	98	HKADJ19
355	829266	similar to S. cerevisiae longevity-assurance protein 1 (SP:P38703) [Caenorhabditis elegans] >sp|Q17870|Q17870 SIMILAR TO S. CEREVISIAE LONGEVITY-ASSURANCE PROTEIN 1. Length = 362	gi|1123105	115	636	43	58	HKADL80

356	829271	cAMP response element regulatory protein [Homo sapiens] >gnl|PID|d1014939 TAXREB67 protein [Homo sapiens] >pir|A45377|A45377 transcription factor CREB-2 - human >sp|P18848|ATF4_HUMAN CYCLIC-AMP-DEPENDENT TRANSCRIPTION FACTOR ATF-4 (DNA-BINDING PROTEIN TAX	gi|181041	261	1118	86	86	HLIAG18
357	829273	unknown [Homo sapiens] >pir|I38891|I38891 hypothetical protein - human (fragment) >sp|Q13021|BENE_HUMAN BENE PROTEIN (FRAGMENT). Length = 148	gi|1000712	1	507	94	94	HKAEP12
358	829274	(AB006202) cytochrome b small subunit of complex II [Homo sapiens] >sp|O14521|DHSD_HUMAN SUCCINATE DEHYDROGENASE [UBIQUINONE] CYTOCHROME B SMALL SUBUNIT PRECURSOR (CYBS) (SUCCINATE-UBIQUINONE REDUCTASE MEMBRANE ANCHOR SUBUNIT). Length = 159	gnl|PID|d1022913	55	546	76	76	HKAPF38
359	829276	Similar to D.melanogaster cadherin-related tumor suppressor [Homo sapiens] >sp|Q92566|Q92566 MYELOBLAST KIAA0279 (FRAGMENT). Length = 2408	gnl|PID|d1014097	272	2422	90	90	HKACB58
360	829279	(AC005620) R33590_2, partial CDS [Homo sapiens] >sp|O75291|O75291 R33590_2, PARTIAL CDS (FRAGMENT). Length = 121	gi|3548790	163	597	95	95	HKAAS81
361	829280			172	375			HJKSB47
362	829283			235	414			HJAAF37
363	829284			2	322			HJMBB19
364	829285			706	912			HKADQ69
365	829287			134	358			HJAAB29
366	829295			81	212			HJACK32

367	829296			352	666			HSAN67
368	829297	mitotic kinase-like protein-1 [Homo sapiens] >pir|S28262|S28262 kinesin-related protein MKLP-1 - human >sp|Q02241|MKLP_HUMAN MITOTIC KINESIN-LIKE PROTEIN-1. Length = 960	gi|34672	1	225	98	98	HJPBA19
369	829298	O-6-methylguanine-DNA methyltransferase [Homo sapiens] >gi|307199 6-O-methylguanine-DNA methyltransferase (EC 2.1.1.63) [Homo sapiens] >gi|34559 O-6-methylguanine-DNA methyltransferase [Homo sapiens] >pir|A34889|XUHUMC methylated-DNA--protein-cysteine S-m	gi|187579	2	694	88	88	HSAV27
370	829302			600	929			HBEJ72
371	829304			300	716			HKAAL43
372	829320	putative [Homo sapiens] >pir|B41648|B41648 protein-tyrosine-phosphatase (EC 3.1.3.48) cdc25B - human >sp|P30305|MPI2_HUMAN M-PHASE INDUCER PHOSPHATASE 2 (EC 3.1.3.48). >gi|2739200 (AF036233) cdc25B phosphatase [Homo sapiens] {SUB 56-338} Length = 566	gi|180173	161	853	100	100	HBCJ85
373	829322	capping protein alpha subunit isoform 1 [Homo sapiens] >pir|G02639|G02639 capping protein alpha subunit isoform 1 - human >sp|P52907|CAZ1_HUMAN F-ACTIN CAPPING PROTEIN ALPHA-1 SUBUNIT (CAPZ). Length = 286	gi|1336099	3	938	95	95	HJBCY27
374	829355			3	782			HHEAA46

375	829364	initiation factor 2 alpha [Bos taurus] >gi|204002 translational initiation factor eIF-2, alpha subunit [Rattus norvegicus] >pir|A26711|A26711 translation initiation factor eIF-2 alpha chain - rat >pir|S18461|S18461 translation initiation factor eIF-2 alph	gi|325	70	651	88	88	HKAEV74
376	829919			272	448			HAJAC05
377	829941	weak similarity to procollagen alpha chain 1(V) chain [Caenorhabditis elegans] >sp|Q20220|Q20220 SIMILARITY TO PROCOLLAGEN ALPHA CHAIN 1(V) CHAIN. Length = 697	gi|1065515	215	796	50	74	HAIBC14
378	829945			43	222			HAGHF36
379	829946			2	319			HAHCZ18
380	829947	(AF033188) WSB-2 [Mus musculus] >sp|O54929|O54929 WSB-2. Length = 404	gi|2766493	1	1206	95	98	HAICN24
381	829952			478	741			HAICL28
382	829954	HIV-EP2/Schnurri-2 [Homo sapiens] >gi|187405 MHC binding protein-2 [Homo sapiens] {SUB 1184-1323} Length = 1833	gi|182120	2	853	80	82	HAGDR03
383	829955	zinc finger protein [Homo sapiens] >sp|Q92951|Q92951 ZINC FINGER PROTEIN. Length = 273	gi|1575615	52	885	99	100	HAGEX65
384	829957			1	744			HAGEP17
385	829958	ribosomal protein L22 [Rattus norvegicus] >pir|S52084|S52084 ribosomal protein L22 - rat Length = 128	gi|710295	2	418	62	74	HAECH75

386	829960	sorbitol dehydrogenase [Homo sapiens] >gi|1755138 sorbitol dehydrogenase [Homo sapiens] >pir|A54674|A54674 L-iditol 2-dehydrogenase (EC 1.1.1.14) - human >sp|G1755138|G1755138 SORBITOL DEHYDROGENASE. Length = 357	gi|520450	2	1069	97	97	HAIBJ62
387	829966	(AF106835) putative DnaJ [Methylovorus sp. strain SS1] >sp|G4008081|G4008081 PUTATIVE DNAJ. Length = 371	gi|4008081	185	505	40	74	HAGAX57
388	829967	histone H1 [Homo sapiens] >pir|S26364|HSHU11 histone H1-1 - human >sp|P16403|H1D_HUMAN HISTONE H1D (H1.2). {SUB 2-213} Length = 213	gi|31968	213	542	81	81	HADDI38
389	829970			3	878			HADBH65
390	829981	transcription factor ATF-3 - human (fragment) Length = 222	pir|C34223|C34223	2	391	70	72	HADFU64
391	829985	nuclear RNA helicase [Homo sapiens] >sp|O00148|O00148 NUCLEAR RNA HELICASE. Length = 427	gi|1905998	26	721	88	88	HACBO64
392	829986	smooth muscle myosin heavy chain isoform SM1 [human, umbilical cord, fetal aorta, Peptide Partial, 330 aa] [Homo sapiens] >pir|I65768|I65768 smooth muscle myosin heavy chain isoform SM1 - human (fragment) >sp|Q16086|Q16086 SMOOTH MUSCLE MYOSIN HEAVY CHAIN	bbs|140615	21	209	100	100	HACBQ88
393	829988			325	849			HACAI04
394	829990			266	454			HADFJ12

395	829991	NGFI-B/nur77 beta-type transcription factor homolog=TINUR [human, T lymphoid cell line, PEER, Peptide, 535 aa] [Homo sapiens] >sp|Q16311|Q16311 TINUR= NGFI-B/NUR77 BETA-TYPE TRANSCRIPTION FACTOR HOMOLOG. Length = 535	bbs|164521	2	286	98	98	HACBV53
396	829992			289	540			HACBX74
397	829993	Not56-like protein [Homo sapiens] >sp|Q92685|NT56_HUMAN NOT56-LIKE PROTEIN. Length = 438	gnl|PID|e276888	3	440	77	77	H6EDW38
398	829998	(AL033385) dna-directed rna polymerase iii subunit [Schizosaccharomyces pombe]	gnl|PID|e1339667	270	830	43	65	H6EDK29
399	829999			14	142			H6BSE17
400	830000	NNP-1 [Homo sapiens] >sp|P56182|NNP1_HUMAN NNP-1 PROTEIN (D21S2056E). Length = 461	gi|2258274	545	856	77	77	H6EEQ39
401	830001	homologous to rat HREV107 (ACC.NO. X76453) [Homo sapiens] Length = 162	gi|1054752	397	903	88	88	H2MBY64
402	830005	alpha 1(XVIII) collagen [Mus musculus] >sp|Q61437|Q61437 PROCOLLAGEN, TYPE XVIII, ALPHA 1 (ALPHA 1 COLLAGEN) (XVIII) (FRAGMENT). Length = 1288	gi|511298	3	347	37	42	H6EEX40
403	830009	TFIIE-beta [Homo sapiens] >bbs|67862 general transcription factor IIE 34 kda subunit, TFIIE 34 kda subunit [human, Peptide, 291 aa] [Homo sapiens] >pir|S29292|S29292 transcription factor TFIIE-beta - human Length = 291	gi|37070	3	1028	93	93	H2LAD85

404	830010	(AF062346) zinc finger protein 216 splice variant 1 [Homo sapiens] >gi|3643811 (AF062347) zinc finger protein 216 splice variant 2 [Homo sapiens] >gi|3668066 (AF062072) zinc finger protein 216 [Homo sapiens] >sp|O76080|O76080 ZINC FINGER PROTEIN 216. >bbs	gi|3643809	1	930	100	100	H2MBU62
405	830127	thymopoietin alpha [Homo sapiens] >pir|A55741|A55741 thymopoietin alpha precursor - human Length = 694	gi|508725	469	1074	77	78	H2MBT25
406	830128			102	770			H2CBH25
407	830129	subunit of coatomer complex [Homo sapiens] >sp|P35606|COPP_HUMAN COATOMER BETA' SUBUNIT (BETA'-COAT PROTEIN) (BETA'-COP) (P102). {SUB 2-906} Length = 906	gi|298097	3	2234	100	100	H2CBU57
408	830137	aldehyde dehydrogenase [Homo sapiens] >sp|P30837|DHA5_HUMAN ALDEHYDE DEHYDROGENASE, MITOCHONDRIAL X PRECURSOR (EC 1.2.1.3) (CLASS 2). Length = 517	gi|1263008	2	943	95	95	H2CBX43
409	830140	retroviral proteinase-like protein - human (fragment) Length = 165	pir|JE0065|JE0065	347	784	100	100	H2CBG30
410	830157	(AF043735) 14-3-3 epsilon [Bos taurus] >gi|984319 epsilon 14-3-3 protein [Homo sapiens] >gnl|PID|d1033501 (AB017103) 14-3-3 epsilon [Homo sapiens] >gi|902787 14-3-3 protein epsilon isoform [Homo sapiens] >gi|1184725 14-3-3 protein epsilon isoform [Homo sa	gi|3676399	2	889	99	99	H2CBB64

411	830195	90kDa heat shock protein [Homo sapiens] >pir|A29461|HHHU84 heat shock protein 90-beta - human >sp|P08238|HS9B_HUMAN HEAT SHOCK PROTEIN HSP 90-BETA (HSP 84) (HSP 90). {SUB 2-724} Length = 724	gi|306891	80	631	93	94	HWACG91
412	830196	90kDa heat shock protein [Homo sapiens] >pir|A29461|HHHU84 heat shock protein 90-beta - human >sp|P08238|HS9B_HUMAN HEAT SHOCK PROTEIN HSP 90-BETA (HSP 84) (HSP 90). {SUB 2-724} Length = 724	gi|306891	19	1263	100	100	H2CAC90
413	830409	eIF3-p40 [Homo sapiens] >gi|2351380 translation initiation factor eIF3 p40 subunit [Homo sapiens] >sp|O15372|O15372 EIF3-P40. Length = 352	gi|2351380	325	1092	91	91	HLDCQ28
414	830417	core protein II precursor [Homo sapiens] >pir|A32629|A32629 ubiquinol--cytochrome-c reductase (EC 1.10.2.2) core protein II - human Length = 453	gi|180928	115	744	81	82	HMCBI54
415	830531	5' half of the product is homologues to Bacillus subtiis SAICAR synthetase, 3' half corresponds to the catalytic subunit of AIR carboxylase [Homo sapiens] >pir|S14147|S14147 multifunctional purine biosynthesis protein - human Length = 425	gi|28384	112	1059	100	100	HMCGQ67
416	830677	pinin [Canis familiaris] >sp|P79149|P79149 PININ. Length = 773	gi|1684845	8	1111	88	88	HLWBS80
417	831355	GTP-binding protein - mouse Length = 198	pir|S39543|S39543	128	730	99	100	HKMAB33
418	831420	(AB016869) p70 ribosomal S6 kinase beta [Homo sapiens] >sp|D1035383|D1035383 P70 RIBOSOMAL S6 KINASE BETA. Length = 495	gnl|PID|d1035383	1	672	91	92	HWBAS06

419	831702	Gem [Homo sapiens] >pir|A54575|A54575 35K GTP-binding protein Gem - human >sp|P55040|GEM_HUMAN GTP-BINDING PROTEIN GEM (GTP-BINDING MITOGEN-INDUCED T-CELL PROTEIN) (RAS-LIKE PROTEIN KIR). Length = 296	gi|544493	100	1107	93	93	H2LAD84
420	831717	ets2 protein [Homo sapiens] >gi|2736087 (AF017257) erythroblastosis virus oncogene homolog 2 protein [Homo sapiens] >pir|B32066|TVHUE2 transcription factor ets-2 - human >sp|P15036|ETS2_HUMAN C-ETS-2 PROTEIN. >gi|182271 ets protein [Homo sapiens] {SUB 324	gi|182273	278	1309	90	90	HLLBB45
421	832488	tissue-specific secretory protein [unidentified] >gi|32051 HE4 protein [Homo sapiens] >pir|S25454|S25454 HE4 protein - human >sp|Q14508|EP4_HUMAN MAJOR EPIDIDYMIS-SPECIFIC PROTEIN E4 PRECURSOR (HE4) (EPIDIDYMAL SECRETORY PROTEIN E4). Length = 125	gi|583141	24	434	98	100	HKMLZ60
422	833207	secretory granule proteoglycan peptide core [Homo sapiens] >gi|338062 proteoglycan secretory granule 1 [Homo sapiens] >gi|32433 hematopoetic proteoglycan core protein (AA 1 - 158) [Homo sapiens] >pir|A35183|A28058 secretory granule proteoglycan core prote	gi|190420	57	542	81	81	HWAFH33
423	835940	putative Rab5-interacting protein {clone L1-57} [human, HeLa cells, Peptide Partial, 122 aa] [Homo sapiens]	bbs|180090	126	464	78	81	HNFHV44
424	836953	GTP-binding protein [Homo sapiens] >pir|G34323|G34323 GTP-binding protein Rab6 - human	gi|550072	388	1038	99	99	HMEFS23

425	837105			860	1168			HLIAS90
426	837300			276	494			HODHJ94
427	837373	ribosomal protein L5 [Homo sapiens] >pir|S55912|S55912 ribosomal protein L5, cytosolic - human >gi|1658578 ribosomal L5 protein [Homo sapiens] {SUB 153-297} Length = 297	gi|550013	1	714	98	98	HIASC92
428	837687	protein trafficking protein [Homo sapiens] >gnl|PID|e239969 transmembrane protein [Homo sapiens] >gnl|PID|e1309760 (AJ004913) integral membrane protein, Tmp21-I (p23) [Homo sapiens] >pir|G01159|G01159 protein trafficking protein tmp21-I - human >sp|E13097	gi|1407826	435	953	98	98	HSLBF05
429	837991			1	294			HPJCY94
430	838442	procollagen C-proteinase [Homo sapiens] >sp|Q13292|Q13292 PROCOLLAGEN C-PROTEINASE. Length = 986	gi|1245357	3	506	97	97	HAUBJ52
431	840541	cyclin C [Homo sapiens] >pir|A40268|A40268 cyclin C - human >sp|P24863|CG1C_HUMAN G1/S-SPECIFIC CYCLIN C. Length = 303	gi|1117984	127	549	99	100	HWHQA57
432	840543	(AF016369) U4/U6 small nuclear ribonucleoprotein hPrp4 [Homo sapiens] >sp|O43445|O43445 U4/U6 SMALL NUCLEAR RIBONUCLEOPROTEIN HPRP4. Length = 522	gi|2708305	40	1020	94	94	HWBEJ29
433	840550			1	141			HWBFM54
434	840563			382	723			HADFY02
435	840565	AZ-1 [Mus musculus] >gnl|PID|d1008454 pre-acrosome localization protein [Mus musculus] >pir|S63993|S63993 acrosomal protein AZ1 - mouse >sp|Q62036|Q62036 5-AZACYTIDINE INDUCED PROTEIN (PRE-ACROSOME LOCALIZATION PROTEIN). Length = 1060	gnl|PID|d1019745	1	300	71	88	HHGCW14

436	840569			2	136			HPRBG41
437	840570	p116Rip [Mus musculus] >sp|P97434|P97434 P116RIP. Length = 1024	gi|1657837	2	691	90	91	HOEDH35
438	840571			873	1097			HIBCA19
439	840573	S-adenosyl homocysteine hydrolase homolog [Homo sapiens] Length = 500	gi|2852125	3	719	74	74	HYAAB09
440	840574			2	292			HWLBN43
441	840575	KERATIN, TYPE I CYTOSKELETAL 10 (CYTOKERATIN 10) (K10) (CK 10). >sp|G244509|G244509 KERATIN 10 V2 SUBDOMAIN 142 AMINO ACID VARIANT. {SUB 452-593} Length = 593	sp|P13645|K1CJ_HUMAN	3	1856	100	100	HWEAD52
442	840579			50	1549			HAPBL12
443	840580			343	867			HWLFE67
444	840581			21	191			HYAAY95
445	840605	(AJ000480) phosphoprotein [Homo sapiens] >sp|O15180|O15180 PHOSPHOPROTEIN (FRAGMENT). Length = 224	gnl|PID|e329709	3	170	97	97	HWTAH85
446	840607	alpha-adaptin (A) (AA 1-977) [Mus musculus] >pir|A30111|A30111 alpha-adaptin A - mouse >sp|P17426|ADAA_MOUSE ALPHA-ADAPTIN A (CLATHRIN ASSEMBLY PROTEIN COMPLEX 2 ALPHA-A LARGE CHAIN) (100 KD COATED VESICLE PROTEIN A) (PLASMA MEMBRANE ADAPTOR HA2/AP2 ADAPT	gi|49878	3	317	98	98	HTYSE72
447	840609	olfactomedin [Rana catesbeiana] >pir|A47442|A47442 olfactomedin precursor - bullfrog >sp|Q07081|OLFM_RANCA OLFACTOMEDIN PRECURSOR (OLFACTORY MUCUS PROTEIN). Length = 464	gi|294502	1	201	46	75	HUFBD83

448	840610	plakoglobin [Homo sapiens] >sp|Q15151|Q15151 PLAKOGLOBIN. >gnl|PID|d1010077 plakoglobin [Homo sapiens] {SUB 239-409} Length = 745	gnl|PID|e214034	1784	2818	94	94	HBGNU40
449	840611			657	848			HUFAT62
450	840612	B-IND1 protein [Mus musculus] >sp|O09003|O09003 B-IND1 PROTEIN. Length = 189	gnl|PID|e1192419	130	1242	85	86	HWLFV07
451	840615	casein kinase II alpha subunit [Bos taurus] >gi|611 casein kinase alpha subunit [Bos taurus] >gi|177994 casein kinase II alpha subunit [Homo sapiens] >gi|598147 casein kinase II alpha subunit [Homo sapiens] >pir|A30319|A30319 casein kinase II (EC 2.7.1.-)	gi|162777	140	1234	94	94	HUKDT16
452	840622			135	962			HTXNQ26
453	840623	1,4-alpha-glucan branching enzyme [Homo sapiens] >pir|A46075|A46075 glycogen branching enzyme - human >sp|Q04446|GLGB_HUMAN 1,4-ALPHA-GLUCAN BRANCHING ENZYME (EC 2.4.1.18) (GLYCOGEN BRANCHING ENZYME) (BRANCHER ENZYME). Length = 702	gi|184026	3	542	97	98	HTTEK41
454	840624			1065	1550			HTXBO36

455	840631	(AL033514) predicted using Genefinder; cDNA EST yk465c10.5 comes from this gene [Caenorhabditis elegans] >sp|E1358418|E1358418 Y75B8A.16 PROTEIN. Length = 431	gnl|PID|e1358418	3	1250	53	73	HTTDU70
456	840632			1241	1453			HTTFY74
457	840633			1	612			HTTFA16
458	840634			232	438			HTTFG83
459	840635			35	748			HTXBW79
460	840636			134	382			HTWBE73
461	840637			315	551			HTTEZ16
462	840639			1035	1700			HTTET75
463	840640	(AC004684) putative ribotol dehydrogenase [Arabidopsis thaliana] >sp|O80924|O80924 PUTATIVE RIBOTOL DEHYDROGENASE. Length = 321	gi|3236237	2	418	31	50	HTQDA44
464	840650			86	940			HTPAG74
465	840652	spermatid perinuclear RNA binding protein [Mus musculus] >pir|A57284|A57284 spermatid perinuclear RNA-binding protein Spnr - mouse >sp|Q62262|Q62262 SPERMATID PERINUCLEAR RNA-BINDING PROTEIN.	gi|673454	1	588	89	89	HTTCB17

Length = 648

466	840653			3	989			HTTDG56
467	840655			1	2139			HTPCP50
468	840659	(AF016507) C-terminal binding protein 2 [Homo sapiens] >sp|P56545|CTB2_HUMAN C-TERMINAL BINDING PROTEIN 2. Length = 445	gi|2909777	511	1518	89	89	HTSHI54
469	840660			293	520			HTOJF77
470	840661			3	710			HTLGP71
471	840662	cleavage signal 1 protein [Homo sapiens] >pir|JH0629|JH0629 cleavage signal-1 protein - human >sp|P28290|CS1_HUMAN CLEAVAGE SIGNAL-1 PROTEIN (CS-1). Length = 249	gi|181123	494	1333	90	92	HTOEY44
472	840663			179	466			HTPBY35
473	840670			1132	1647			HTTBJ61
474	840671			210	1001			HTJMJ95
475	840672	(AF037448) Gry-rbp [Homo sapiens] >sp|O60506|O60506 GRY-RBP. Length = 623	gi|3037013	3	1739	99	99	HTHDF09
476	840673	complement component C1s [Homo sapiens] >gi|179648 complement subcomponent C1s precursor [Homo sapiens] >gi|763110 complement protein C1s precursor [Homo sapiens] >pir|A40496|C1HUS complement subcomponent C1s (EC 3.4.21.42) precursor - human >sp|P09871|C1	gi|179646	1	690	98	98	HTJAA66
477	840674	glypican [Homo sapiens] >pir|A36347|A36347 glypican 1 precursor - human >sp|P35052|GLYP_HUMAN GLYPICAN-1	gi|31847	208	525	87	87	HTLDZ68

		PRECURSOR. Length = 558						
478	840677			237	1010			HTJNE24
479	840678			3	842			HTGFX11
480	840680	Similarity to H.influenza ribonuclease PH (SW:RNPH_HAEIN);	gnl|PID|e1343517	115	555	48	72	HTLEI30
481	840691	polynucleotide adenylyltransferase [Bos taurus] >sp|P25500|PAP_BOVIN POLY(A) POLYMERASE (EC 2.7.7.19) (PAP) (POLYNUCLEOTIDE ADENYLYLTRANSFERASE). {SUB 2-739} Length = 739	gi|605	1	900	68	70	HTEKG75
482	840700			54	998			HTELT78
483	840701			879	1370			HDQDW52
484	840702			713	955			HTEJY89
485	840705			106	621			HTELU22
486	840715	stanniocalcin [Homo sapiens] >gi|975298 stanniocalcin precursor [Homo sapiens] >sp|P52823|CSTP_HUMAN STANNIOCALCIN PRECURSOR.	gi|1199620	1	828	99	99	HSYBK03
487	840717			561	1058			HSSNA42
488	840718	(AC005154) similar to protein U28928 (PID:g861306) [Homo sapiens] >sp|O75223|O75223 WUGSC:H_DJ0777O23.1 PROTEIN. Length = 188	gi|3242764	227	562	98	98	HSSMV32
489	840719			3	284			HSSNB31
490	840724	metallothionein I-F [Homo sapiens] >gi|386866 human metallothionein-If [Homo sapiens] >pir|B22634|SMHU1F metallothionein 1F - human >sp|P04733|MT1F_HUMAN	gi|386867	226	510	100	100	HSVBQ73

METALLOTHIONEIN-IF (MT-1F). Length = 61

491	840725	Unknown		1259	1501			HSRDA46
492	840727			4	606			HSXCO55
493	840731	apg-2 [Mus musculus] >sp|Q61316|HS74_MOUSE HEAT SHOCK 70-RELATED PROTEIN APG-2. Length = 841	gnl|PID|d1013599	22	471	69	75	HSSAO67
494	840733			3	437			HSSGG96
495	840734			228	365			HSRFE65
496	840736	small nuclear ribonucleic protein [Homo sapiens] Length = 92	gi|338259	58	342	100	100	HSRFE95
497	840737			3	341			HSSFS95
498	840739			196	561			HSLJW05
499	840746	similar to mouse CC1. [Homo sapiens] >sp|Q92601|Q92601 MYELOBLAST KIAA0202. Length = 1591	gnl|PID|d1013883	452	1420	85	85	HSLJI31
500	840748	cytoplasmic antiproteinase, CAP=38 kda intracellular serine proteinase inhibitor [human, placenta, Peptide, 376 aa] [Homo sapiens] Length = 376	bbs|145232	65	1441	96	96	HSRGX11
501	840750	(AC002339) putative ABC transporter [Arabidopsis thaliana] >sp|O22950|O22950 ABC TRANSPORTER ISOLOG, 3' PARTIAL (FRAGMENT). Length = 664	gi|2335109	507	845	34	62	HSODA53
502	840751	MYOSIN LIGHT CHAIN KINASE, SMOOTH MUSCLE AND NON-MUSCLE ISOZYMES (EC 2.7.1.117) (MLCK) [CONTAINS: TELOKIN]. Length = 1913	sp|Q15746|KMLS_HUMAN	3	2519	90	90	HTEFV12

503	840757	(AB005624) rig-analog DNA-binding protein [Sus scrofa] >gi|306898 rig-analog protein (putative); putative [Homo sapiens] >gi|337416 human homologue of rat insulinoma gene (rig); putative [Homo sapiens]	gnl|PID|d1022359	236	568	100	100	HKBAL84
504	840759	transcription factor ZFM1 [Homo sapiens] >sp|Q15913|Q15913 TRANSCRIPTION FACTOR ZFM1. Length = 571	gi|1100209	481	2073	100	100	HSLDB56
505	840760			233	529			HSKDG51
506	840770	FORMATE ACETYLTRANSFERASE 2 (EC 2.3.1.54) (PYRUVATE FORMATE-LYASE 2) (FRAGMENT). Length = 716	sp|D1036490|D1036490	1	195	100	100	HSLCS52
507	840781	glyoxaslase I [Homo sapiens] >gnl|PID|d1003075 lactoyl glutathione lyase [Homo sapiens] >pir|A46714|A46714 lactoylglutathione lyase (EC 4.4.1.5) - human	gi|183258	107	673	99	99	HSKHK35
508	840789	(AC003003) Homolog of rat B/K protein product [Homo sapiens] >sp|O43330|O43330 HUMAN HOMOLOGUE OF RAT B/K PROTEIN PRODUCT (FRAGMENT). Length = 361	gi|2865208	1	657	93	93	HHPSF20
509	840790			216	347			HJKSC89
510	840791			2	817			HHSGD58
511	840798	polynucleotide phosphorylase (PNPase) [Bacillus subtilis] >gi|1184680 polynucleotide phosphorylase [Bacillus subtilis] >pir|S70691|S70691 polyribonucleotide nucleotidyltransferase (EC 2.7.7.8) alpha chain pnpA - Bacillus subtilis >sp|P50849|PNPA_BACSU POL	gnl|PID|e1185260	2	493	41	66	HHERQ85
512	840802	(AB001915) NG,NG-dimethylarginine dimethylaminohydrolase [Homo sapiens] Length = 285	gnl|PID|d1038106	1	618	97	98	HHFES15

513	840803	zinc finger protein [Molgula oculata] >sp|Q25473|Q25473 ZINC FINGER PROTEIN. Length = 558	gi|308967	1	1935	36	63	HHERC56
514	840809			2	208			HHEPE84
515	840811			1	690			HHFBP51
516	840813			2	214			HHEMJ45
517	840814	(AL022162) dJ454M7.1.1 (Lowe Oculocerebrorenal Syndrome protein OCRL-1) (isoform 1) [Homo sapiens] >gnl|PID|e244699 Lowe oculocerebrorenal syndrome (OCRL) [Homo sapiens] {SUB 336-813} Length = 813	gnl|PID|e1371023	2	154	100	100	HGBIC73
518	840817	(AB004903) STAT induced STAT inhibitor-2 [Homo sapiens] >gi|3265033 (AF037989) STAT-induced STAT inhibitor-2 [Homo sapiens] >sp|O14508|O14508 STAT INDUCED STAT INHIBITOR-2. Length = 198	dbj||AB004903_1	85	864	99	99	HHEBI06
519	840825			2	436			HHEAB14
520	840826			2022	2360			HHBFD61
521	840827			14	817			HHEAH66
522	840828	Cleavage and Polyadenylation Specifity Factor protein [Bos taurus] >sp|P79101|P79101 CLEAVAGE AND POLYADENYLATION SPECIFITY FACTOR PROTEIN. Length = 684	gnl|PID|e225428	2	1180	98	99	HHEAK56
523	840829			130	618			HFVIE96
524	840831			1166	1447			HFXCN75
525	840836			18	566			HFXKK43
526	840837	(AC005757) R32611_2 [Homo sapiens] >sp|O75865|O75865 R32611_2 (FRAGMENT). Length = 160	gi|3688090	322	759	62	80	HGBAG76
527	840838	(AF006386) axonemal dynein light chain [Homo sapiens] >sp|O14645|O14645 AXONEMAL DYNEIN LIGHT CHAIN. Length = 257	gi|2352534	2	832	100	100	HFXJP72

528	840841			2	790			HGAMD29
529	840842			216	791			HFPCK56
530	840843			12	791			HFVGM54
531	840845			669	1031			HGBBY80
532	840847			151	1044			HFPCN94
533	840851			470	2047			HFOXS46
534	840853			15	224			HFOXV75
535	840854			149	1183			HFPBK03
536	840858	(AC002333) molybdenum cofactor biosynthesis protein E isolog [Arabidopsis thaliana] >sp|O22827|O22827 MOLYBDENUM COFACTOR BIOSYNTHESIS PROTEIN E ISOLOG. Length = 198	gi|2281094	249	833	41	51	HFPCP42
537	840859	Gu protein [Homo sapiens] >pir|PC6010|PC6010 RNA helicase Gu - human (fragment) >sp|Q13436|Q13436 NUCLEOLAR RNA HELICASE GU (FRAGMENT). Length = 801	gi|1230564	3	1163	63	74	HFOYQ50
538	840863			1	165			HFIIW33
539	840868	argininosuccinate lyase [Homo sapiens] >gi|179091 argininosuccinate lyase [Homo sapiens] >pir|A31658|WZHURS argininosuccinate lyase (EC 4.3.2.1) - human Length = 464	gi|179089	2	1678	99	99	HFKEN53
540	840869	(AF064244) intersectin long form [Homo sapiens] >sp|G3859855|G3859855 INTERSECTIN LONG FORM. >gi|3859853 (AF064243) intersectin short form [Homo sapiens] {SUB 1-1220} >gi|3930533 (AF064247) intersectin long form [Homo sapiens] {SUB 1209-1263} Length = 172	gi|3859855	33	632	74	88	HFKFG36
541	840870			505	831			HFKFN13
542	840875			3	617			HFTTH86

543	840876	(AC004392) Contains similarity to gb|U51898 Ca2+-independent phospholipase A2 from Rattus norvegicus. [Arabidopsis thaliana] >sp|O80693|O80693 F8K4.6 PROTEIN. Length = 1265	gi|3367519	1	1110	45	70	HFIZQ25
544	840881	histone H2B.1 [Homo sapiens] >gnl|PID|e1301465 (AJ223353) Histone H2B [Homo sapiens] >gi|51306 histone H2B-291B (AA 1 - 126) [Mus musculus] >pir|S04153|S04153 histone H2B (clone 291B) - mouse >pir|F40335|F40335 histone H2B.1 (b) - human >sp|E1301465|E1301	gi|184080	3	449	77	77	HFIIR54
545	840883			3	428			HFIIIA80
546	840886	(AJ000506) Homeodomain protein Meis2c [Mus musculus] >sp|P97367|MEI2_MOUSE HOMEOBOX PROTEIN MEIS2 (MEIS1-RELATED PROTEIN 1). Length = 477	gnl|PID|e330082	71	964	90	90	HHPDW66
547	840887			1202	1600			HFIIR82
548	840891	RNA polymerase I subunit A12.2 [Saccharomyces cerevisiae] >gi|1019685 ORF YJR063w [Saccharomyces cerevisiae] >gi|531231 RNA polymerase I A12.2 subunit [Saccharomyces cerevisiae] >gi|1015737 ORF YJR063w [Saccharomyces cerevisiae] >pir|A48107|A48107 DNA-dir	gi|172462	250	375	64	86	HFCBQ77
549	840892	histone H2B [Homo sapiens] >pir|I37445|I37445 histone H2B.1 - human >sp|P33778|H2B0_HUMAN HISTONE H2B.1. {SUB 2-126} Length = 126	gi|31977	3	410	98	98	HFEBK16

550	840894	(AF002697) E1B 19K/Bcl-2-binding protein Nip3 [Homo sapiens] >sp|O14620|O14620 E1B 19K/BCL-2-BINDING PROTEIN NIP3. Length = 194	gi|2511529	1	705	80	80	HFHIO60
551	840896	Cdc73p [Saccharomyces cerevisiae] >pir|S59383|S59383 probable membrane protein YLR418c - yeast (Saccharomyces cerevisiae) >sp|Q06697|Q06697 CHROMOSOME XII COSMID 9931. Length = 393	gi|632679	425	1249	28	57	HFIAL02
552	840897	syntaxin-4 [Homo sapiens] >gnl|PID|e332032 (AJ000541) syntaxin 4 precursor [Homo sapiens] >gi|2570870 (AF026007) syntaxin 4 [Homo sapiens] >pir|S52726|S52726 syntaxin-4 - human Length = 297	gi|758105	3	1142	100	100	HFIAW49
553	840898			2	265			HFEBI76
554	840904			396	1802			HETIW62
555	840905	DNA fragmentation factor-45 [Homo sapiens] >sp|O00273|DF45_HUMAN DNA FRAGMENTATION FACTOR-45 (DFF-45). Length = 331	gi|2065561	3	1100	95	95	HETBS69
556	840908	KIAA0156 gene product is related to Xenopus nucleolin. [Homo sapiens] >sp|Q15020|Q15020 ORF. Length = 963	gnl|PID|d1010577	348	2081	87	87	HETCI63
557	840909	3-methyl-adenine DNA glycosylase [Homo sapiens] Length = 298	gnl|PID|e224269	2	949	94	94	HEQAN83
558	840910			103	348			HFKHD68
559	840912			1530	1754			HHPBB92
560	840916	MAL protein [Homo sapiens] >gi|435478 MAL-a gene product [Homo sapiens] >gnl|PID|e1192240 MAL. [Homo sapiens] >pir|A29472|A29472 T-cell surface glycoprotein MAL, splice form a - human	gi|307157	1	432	86	93	HETJW92

561	840917			518	886			HETIZ12
562	840918	(AF020038) NADP-dependent isocitrate dehydrogenase [Homo sapiens] >gi|3641398 (AF020038) NADP-dependent isocitrate dehydrogenase [Homo sapien	gi|3641398	231	1508	99	99	HAJCO38
563	840922			839	1033			HELGB82
564	840923			1044	1289			HEQAN39
565	840927			119	364			HEMFU44
566	840928			2	1258			HEMCG01
567	840929	helix-loop-helix phosphoprotein [Homo sapiens] >gi|292055 helix-loop-helix phosphoprotein [Homo sapiens] >pir|I53020|I53020 G-0/G-1 switch regulatory protein 8 - human >pir|I65984|I65984 helix-loop-helix phosphoprotein - human Length = 211	gi|292037	3	662	92	92	HEOMQ95
568	840930	(AF002282) alpha-actinin-2 associated LIM protein [Homo sapiens] >sp|O60440|O60440 ALPHA-ACTININ-2 ASSOCIATED LIM PROTEIN. Length = 316	gi|3138924	3	1019	99	99	HEGAD28
569	840931	similar to thiolesterase;	gnl|PID|e1343797	1	1164	49	67	HEMFC70
570	840941			2	781			HEGAL15
571	840944	cofactor E [Homo sapiens] >sp|Q15813|Q15813 COFACTOR E. Length = 527	gi|1465772	822	1685	98	98	HELFC44
572	840945			1067	1435			HEEAS77
573	840948	lanosterol synthase [human, fetal liver, Peptide, 732 aa] [Homo sapiens] >gnl|PID|d1010523 lanosterol synthase [Homo sapiens] >gi|951314 2,3-oxidosqualene-lanosterol cyclase [Homo sapiens] >pir|JC4194|JC4194 lanosterol synthase (EC 5.4.99.7) - human >sp|P	bbs|176180	3	326	99	100	HE9ST22

574	840949	(AJ005324) glutamate permease [synthetic construct] >gnl|PID|e1360147 (AJ005327) glutamate permease [synthetic construct] >gnl|PID|e1360153 (AJ005330) glutamate permease [synthetic construct] Length = 459	gnl|PID|e1360141	3	101	95	95	HE9RM92
575	840953	P43=mitochondrial elongation factor homolog [human, liver, Peptide, 452 aa] [Homo sapiens] >pir|I53499|I53499 translation elongation factor TU-like protein P43, mitochondrial - human Length = 452	bbs|160014	1	1437	100	100	HELGM94
576	840954	RNase L inhibitor (clone 8) - human Length = 599	pir|S63672|S63672	69	1949	95	95	HE9HC20
577	840958	FUSE binding protein 2 [Homo sapiens] >sp|Q92945|Q92945 FUSE BINDING PROTEIN 2 (FRAGMENT). Length = 652	gi|1575607	154	465	57	58	HFLVB33
578	840960	phosphomannose isomerase [Homo sapiens] >pir|S41122|S41122 mannose-6-phosphate isomerase (EC 5.3.1.8) - human >sp|P34949|MANA_HUMAN MANNOSE-6-PHOSPHATE ISOMERASE (EC 5.3.1.8) (PHOSPHOMANNOSE ISOMERASE) (PMI) (PHOSPHOHEXOMUTASE). {SUB 2-423} Length = 423	gi|416017	224	670	100	100	HEEAD70
579	840968			375	2222			HEBFH29
580	840969			1054	1530			HE9PB53
581	840972			1	387			HE8UU14
582	840973			548	874			HE9DH68
583	840975			1	159			HE9GO90
584	840978			1433	1765			HE9NG78

585	840980	nerve growth factor [Homo sapiens] >gi|32031 pleiotrophin [Homo sapiens] >bbs|119887 pleiotrophin, PTN [human, Peptide, 168 aa] [Homo sapiens] >bbs|130735 heparin-binding neurite outgrowth promoting factor, HBNF {alternatively spliced} [human, Peptide, 16	gi|183890	75	833	90	90	HEBFE14
586	840982			81	359			HE8ES49
587	840985			3	830			HE8UK50
588	840989	(AB016247) sterol-C5-desaturase [Homo sapiens] >sp|O75845|O75845 STEROL-C5-DESATURASE (EC 1.3.3.2) (LATHOSTEROL OXIDASE). Length = 299	gnl|PID|d1034698	107	1027	99	100	HE8FM74
589	840991	(AF032886) forkhead protein [Homo sapiens] >sp|O43524|O43524 FORKHEAD PROTEIN. Length = 673	gi|2895494	861	1559	81	81	HE8FA09
590	840996	ATP:citrate lyase [Homo sapiens] >sp|Q13037|Q13037 ATP:CITRATE LYASE. Length = 1101	gi|603074	818	1906	99	99	HE8MY23
591	840997	LIV-1 protein [Homo sapiens] >pir|G02273|G02273 LIV-1 protein - human >sp|Q13433|Q13433 ESTROGEN REGULATED LIV-1 PROTEIN. Length = 752	gi|1256001	3	1193	75	75	HE8DR57
592	840998			1	390			HE2BN26
593	840999			855	1013			HE8DJ30
594	841000			1	279			HE6DC57
595	841002			363	812			HE8BT63
596	841003			94	315			HE2DX28
597	841008	Aop1_Human, MER5(Aop1_Mouse)-like protein [Homo sapiens] >gi|854126 humer [Homo sapiens] {SUB 227-256} Length = 256	gnl|PID|d1008985	1	672	99	99	HE8AU49

598	841013	(AB011004) UDP-N-acetylglucosamine pyrophosphorylase [Homo sapiens] >sp|Q16222|Q16222 AGX-1 ANTIGEN (FRAGMENT). Length = 505	gnl|PID|d1032151	265	1836	99	99	HDTAU64
599	841014	fumarase precursor [Homo sapiens] >gi|4097195 fumarase [Homo sapiens] >sp|P07954|FUMH_HUMAN FUMARATE HYDRATASE, MITOCHONDRIAL PRECURSOR (EC 4.2.1.2) (FUMARASE). >sp|G4097195|G4097195 FUMARASE (EC 4.2.1.2). Length = 510	gi|1545996	178	1185	96	96	HE2EB32
600	841015			48	425			HE2DT31
601	841018			1	150			HE2EA79
602	841019			94	228			HDTGC76
603	841024	Ran [Canis familiaris] >gi|190879 ras-like protein [Homo sapiens] >gi|2967848 (AF052578) androgen receptor associated protein 24 [Homo sapiens] >gi|727167 Ran [Mus musculus] >bbs|180269 GTP-binding protein [mice, C3H/HeJ spleens, LDS responder, Peptide, 2	gi|924	34	750	100	100	HE9CO25
604	841025			75	401			HDTDZ04
605	841026			3	599			HDTGP42
606	841027			1	489			HDRMB48
607	841029	Id-2H [Homo sapiens] >pir|A40227|A40227 transcription repressor Id-2 - human >sp|Q02363|ID2_HUMAN DNA-BINDING PROTEIN INHIBITOR ID-2. Length = 134	gnl|PID|d1003496	1	528	100	100	HDTAG94
608	841030			515	721			HDTGK45
609	841031			23	145			HDSAL27

610	841034	G-rich sequence factor-1 [Homo sapiens] >gi|517196 G-rich sequence factor-1 [Homo sapiens] >sp|Q12849|GRF1_HUMAN G-RICH SEQUENCE FACTOR-1 (GRSF-1). >pir|S48081|S48081 GRSF-1 protein - human (fragment) {SUB 94-424} Length = 424	gi|517196	267	449	95	98	HDQDH60
611	841036			1201	1542			HDPTM31
612	841039	(AC002340) putative RNA helicase A, 5' partial [Arabidopsis thaliana] >sp|O49345|O49345 PUTATIVE RNA HELICASE A, 5' PARTIAL (FRAGMENT). Length = 1114	gi|2880057	763	2112	60	76	HDQFB71
613	841040	(AF071202) ABC transporter MOAT-B [Homo sapiens] >sp|G3335173|G3335173 ABC TRANSPORTER MOAT-B. Length = 1325	gi|3335173	2	1339	92	92	HDQDF77
614	841048			1	1338			HDPXU60
615	841049	(AC003682) ZNF134 [Homo sapiens] >sp|G2689444|G2689444 ZNF134. Length = 427	gi|2689444	3	347	97	97	HDPXK77
616	841050			705	947			HDPUP64
617	841052	monoamine oxidase A [Homo sapiens] >gi|187353 monoamine oxidase A [Homo sapiens] >gi|187355 monoamine oxidase A [Homo sapiens] >pir|A36175|A36175 amine oxidase (flavin-containing) (EC 1.4.3.4) A - human >sp|P21397|AOFA_HUMAN AMINE OXIDASE [FLAVIN-CONTAINI	gi|187351	1	1194	95	95	HDPRJ46
618	841054			60	1262			HDPXL80
619	841055			23	346			HDPMK92
620	841056			492	695			HDPVB33
621	841060			612	851			HDPXB24

622	841061	quinone oxidoreductase [Homo sapiens] >gi|516534 quinone oxidoreductase2 [Homo sapiens] >pir|A32667|A32667 NAD(P)H dehydrogenase (quinone) (EC 1.6.99.2) 2 - human Length = 231	gi|190818	21	614	100	100	HPIBQ60
623	841062	histone deacetylase HD1 [Homo sapiens] >sp|Q13547|HDA1_HUMAN HISTONE DEACETYLASE 1 (HD1). Length = 482	gi|1277084	67	1530	90	90	HDPPA96
624	841063	(AL009194) SWISS-PROT:P38861; NONSENSE-MEDIATED MRNA DECAY PROTEIN 3.; SACCHAROMYCES CEREVISIAE	gnl|PID|e1251068	2	592	69	82	HDPJQ57
625	841067	mannosyl-oligosaccharide 1,2-alpha-mannosidase (EC 3.2.1.113) - rabbit (fragment) >gi|474282 mannosyl-oligosaccharide alpha-1,2-mannosidase [Oryctolagus cuniculus] {SUB 12-480} Length = 480	pir|B54408|B54408	2	592	59	83	HDPQE64
626	841074	14.3.3 protein [Homo sapiens] >gi|32464 HS1 gene product [Homo sapiens] >pir|S15076|S15076 protein kinase regulator 14.3.3 - human >sp|P27348|143T_HUMAN 14-3-3 PROTEIN TAU (14-3-3 PROTEIN THETA) (14-3-3 PROTEIN T-CELL) (HS1 PROTEIN). >gi|3387922 (AF070556	gi|23222	188	907	98	99	HE8NS76
627	841076			96	755			HDPMG95
628	841081	(AE000715) ribosomal protein L20 [Aquifex aeolicus] >pir|C70382|C70382 ribosomal protein L20 - Aquifex aeolicus >sp|O67086|O67086 50S RIBOSOMAL PROTEIN L20. Length = 118	gi|2983472	2	541	41	65	HDPQC09
629	841083			1	480			HDPCX80
630	841089			321	551			HDPND16

631	841093	(AF035646) Rab10 [Mus musculus] >sp|O88386|O88386 RAB10. Length = 200	gi|3406428	479	1132	100	100	HDPPI29
632	841097	(AF090867) guanosine monophosphate reductase [Rattus norvegicus] >sp|G3907579|G3907579 GUANOSINE MONOPHOSPHATE REDUCTASE. Length = 345	gi|3907579	267	1061	78	90	HDPFB78
633	841098	GATA-binding protein [Homo sapiens] >pir|A40815|A40815 transcription factor GATA-2 (version 1) - human >sp|P23769|GAT2_HUMAN ENDOTHELIAL TRANSCRIPTION FACTOR GATA-2. Length = 480	gi|182996	1	384	90	91	HDABX64
634	841101	phosphatidylcholine transfer protein [Bos taurus] >pir|A91092|EPBO phosphatidylcholine transfer protein - bovine >sp|P02720|PPCT_BOVIN PHOSPHATIDYLCHOLINE TRANSFER PROTEIN (PC-TP). Length = 213	gi|710419	3	1004	35	55	HDPBQ32
635	841113	2-hydroxyhepta-2,4-diene-1,7-dioate isomerase (hpcE) [Methanococcus jannaschii] >pir|F64506|F64506 2-hydroxyhepta-2,4-diene-1,7-dioate isomerase homolog - Methanococcus jannaschii >sp|Q59050|Q59050 HYPOTHETICAL PROTEIN MJ1656. Length = 237	gi|1500558	133	1137	50	74	HDBAE85
636	841115			58	396			HDLAZ62
637	841116			47	682			HDPBJ61
638	841117			1	1179			HDFMB93
639	841125			1	117			HCYB178
640	841127			2	859			HDABQ85

641	841128	collagenase stimulatory factor [Homo sapiens] >gi|1209374 amino acid feature: intracellular domain, aa 707 .. 829; amino acid feature: transmembrane domain, aa 638 .. 706; amino acid feature: extracellular domain, aa 86 .. 637 [Homo sapiens] >gi|34449 M6	gi|409357	64	891	100	100	HDPFI18
642	841132			1	1428			HDPFI70
643	841133	myosin-I, Myr 1c (alternatively spliced) - rat Length = 1078	pir|B45439|B45439	4	1710	89	91	HCYBL17
644	841134	gamma SNAP [Homo sapiens] Length = 312	gi|1685288	2	802	100	100	HDAAC32
645	841135	homologous to mouse gene PC326:GenBank Accession Number M95564 [Homo sapiens] >sp|Q12839|Q12839 (H326). Length = 597	gi|458692	124	765	81	81	HDABE30
646	841136			514	735			HCQDF95
647	841138	imogen 38 [Homo sapiens] >sp|Q92665|Q92665 IMOGEN 38. Length = 395	gnl|PID|e218584	3	1238	80	80	HDABK25
648	841139			347	478			HCQBH60
649	841141			192	833			HDPBQ85
650	841142			452	1051			HCQAM05
651	841145			1022	1366			HCNSQ35
652	841146			864	1061			HCMSW06
653	841150	(AF038957) translation initiation factor 4e [Homo sapiens] >sp|O75349|O75349 TRANSLATION INITIATION FACTOR 4E. Length = 236	gi|3329384	115	387	83	86	HCQAG10

654	841153	argininosuccinate synthetase [Homo sapiens] >gi|28872 argininosuccinate synthetase (aa 1-412) [Homo sapiens] >pir|A01195|AJHURS argininosuccinate synthase (EC 6.3.4.5) - human >sp|P00966|ASSY_HUMAN ARGININOSUCCINATE SYNTHASE (EC 6.3.4.5) (CITRULLINE--ASPA	gi|179057	1207	2532	96	96	HCYBC10
655	841154	(AF084260) signalosome subunit 2 [Homo sapiens] >gi|3639069 (AF087688) alien-like protein [Mus musculus] >sp|O88950|O88950 ALIEN-LIKE PROTEIN. >sp|G3514097|G3514097 SIGNALOSOME SUBUNIT 2. >gi|3309166 (AF071312) COP9 complex subunit 2 [Mus musculus] {SUB 4	gi|3514097	1	1368	100	100	HCMSB29
656	841156	carcinoma-associated antigen GA733-2 [Homo sapiens] >gi|182906 carcinoma-associated antigen GA733-2 [Homo sapiens] >pir|B48149|B48149 epithelial glycoprotein antigen GA733-2 precursor - human Length = 314	gi|182896	6	1130	86	86	HCIAA60
657	841157	collagen pro-alpha-1 type I chain [Mus musculus] >pir|S57243|S21626 collagen alpha 1(I) chain precursor - mouse >sp|P11087|CA11_MOUSE PROCOLLAGEN ALPHA 1(I) CHAIN PRECURSOR. >gi|192262 pro-alpha-1 type I collagen [Mus musculus] {SUB 518-1128} >gi|192264 p	gi|470674	88	336	36	42	HCHCJ07
658	841159			510	818			HCLCK84
659	841164			2	463			HCHAZ66
660	841167			982	1305			HCHOG20

661	841170	SRp30c [Homo sapiens] >gnl|PID|c1248292 (AL021546) pre-mRNA splicing factor SRp30c [Homo sapiens] >gi|4099429 splicing factor SRp30c [Homo sapiens] >pir|S59075|S59075 splicing factor SRp30c - human >sp|G4099429|G4099429 SPLICING FACTOR SRP30C. Length = 22	gi|1049078	2	760	81	81	HCHOE21
662	841173	spermidine synthase [Homo sapiens] >pir|A32610|A32610 spermidine synthase (EC 2.5.1.16) - human Length = 302	gi|338394	2	931	97	97	HCHBQ07
663	841176			561	683			HCFOI36
664	841178	thyroid receptor interactor [Homo sapiens] Length = 152	gi|703110	65	460	99	100	HCGBQ34
665	841180	(AF029777) hGCN5 [Homo sapiens] >sp|G3220164|G3220164 HGCN5. >gi|1491935 histone acetyltransferase [Homo sapiens] {SUB 362-837} >sp|G1911495|G1911495 HGCN5=TRANSCRIPTIONAL ADAPTOR. {SUB 411-837} Length = 837	gi|3220164	553	1530	97	97	HCGLC82
666	841181			2	283			HCFMN22
667	841182	70 K protein (AA 1-614) [Homo sapiens] >pir|A25707|A25707 U1 snRNP 70K protein - human >gi|337447 small ribonucleoprotein 70 kd protein [Homo sapiens] {SUB 178-614} >gi|602021 hU1-70K protein (302 AA) [Homo sapiens] {SUB 227-527} Length = 614	gi|36100	251	988	100	100	HCFNJ56
668	841185			342	536			HCFNF67
669	841187			458	1096			HCGAA74
670	841188	DNA repair endonuclease subunit [Homo sapiens] Length = 905	gi|1524411	2	2749	92	92	HCFMK76
671	841189			336	926			HCFMC34

672	841192	methylmalonyl-CoA mutase [Homo sapiens] >sp|P22033|MUTA_HUMAN METHYLMALONYL-COA MUTASE PRECURSOR (EC 5.4.99.2) (MCM). Length = 750	gi|187452	1	1428	99	99	HCFMO54
673	841194	(AF039405) arsenite-translocating ATPase [Mus musculus] >sp|O54984|O54984 ARSENITE-TRANSLOCATING ATPASE. Length = 350	gi|2745900	182	1138	95	95	HCGAB52
674	841195			3	623			HCEWM29
675	841198			2	913			HCFBC32
676	841200	(AF015037) endooligopeptidase A related protein; EOPA related protein [Oryctolagus cuniculus] >sp|O46480|O46480 ENDOOLIGOPEPTIDASE A RELATED PROTEIN (FRAGMENT). Length = 667	gi|2827886	35	703	75	81	HCEER84
677	841201			158	571			HCEBD63
678	841202	rhoB [Homo sapiens] >gi|206656 rhoB [Rattus norvegicus] >gnl|PID|e258480 RHOB [Mus musculus] >pir|A01372|TVHURH GTP-binding protein rhoB - human >pir|A39727|TVRTRH GTP-binding protein rhoB - rat >pir|JC5075|JC5075 GTP-binding protein rhoB - mouse >gi|3373	gi|36032	66	1229	100	100	HCHOV21
679	841209			1	552			HCDMF27
680	841210	PTB-associated splicing factor [Homo sapiens] >pir|A46302|A46302 PTB-associated splicing factor, long form - human >gi|23712 myoblast antigen 24.1D5 [Homo sapiens] {SUB 312-707} >gi|4063717 (AF110499) PTB-associated splicing factor [Mus musculus] {SUB 377	gi|38458	2	1405	93	93	HCEMT64

681	841213	G9a [Homo sapiens] >pir|S30385|S30385 G9a protein - human >sp|Q14349|Q14349 G9A PROTEIN CONTAINING ANKYRIN-LIKE REPEATS. Length = 1001	gi|287865	3	344	82	84	HCEFE38
682	841217			2	1198			HCE1V79
683	841219	SMOOTH MUSCLE MYOSIN HEAVY CHAIN (FRAGMENT). Length = 1052	sp|D1037960|D1037960	208	774	95	97	HBZS102
684	841222			29	856			HCDC163
685	841223			2088	2486			HCEBW38
686	841224	RNA polymerase II elongation factor ELL2 [Homo sapiens] >sp|O00472|ELL2_HUMAN RNA POLYMERASE II ELONGATION FACTOR ELL2. Length = 640	gi|1946347	2	2032	95	95	HCE2D15
687	841226			2	373			HCCMD50
688	841227			1	831			HBZAK55
689	841228	F25H9.7 [Caenorhabditis elegans] >gnl|PID|e1346003 F25H9.7 [Caenorhabditis elegans] >sp|P91989|P91989 F25H9.7 PROTEIN. Length = 154	gnl|PID|e1346003	3	407	46	62	HCDEA07
690	841231			279	977			HBXCC66

691	841232	MHC HLA-RD protein [Homo sapiens] >pir|A33640|A33640 class III histocompatibility antigen RD - human Length = 382	gi|386949	3	461	94	95	HCEIS91
692	841233	(AF069984) nitrilase homolog 1 [Homo sapiens] >gi|3228666 (AF069987) nitrilase 1 [Homo sapiens] >sp|O76091|O76091 NITRILASE HOMOLOG 1. Length = 327	gi|3242978	2	673	94	95	HBUAF56
693	841234	(AJ005073) Alix [Mus musculus] >sp|O88695|O88695 ALIX. Length = 869	gnl|PID|e1318710	561	2564	89	91	HBWCI70
694	841236			187	483			HBXGB85
695	841238			168	389			HBXFF92
696	841239			405	605			HBMUU08
697	841242			169	360			HBNAT03
698	841243			3	281			HBMTQ45
699	841248	phorbolin 3 [Homo sapiens] >sp|G4097433|G4097433 PHORBOLIN 3. Length = 235	gi|4097433	3	668	46	62	HBUAC02
700	841250			2	1309			HBJEC31
701	841251			5	247			HBJLL24
702	841254			879	1136			HBZSH07
703	841263			1	354			HBJDS57
704	841266			182	337			HBJFN11
705	841269	(AL021958) fadE9 [Mycobacterium tuberculosis] >sp|O53815|O53815 ACYL-COA DEHYDROGENASE. Length = 390	gnl|PID|e1253290	93	1130	51	70	HBDAC79
706	841272	p67 myc protein [Homo sapiens] >sp|D1001846|D1001846 P67 MYC PROTEIN (FRAGMENT). Length = 454	gnl|PID|d1001846	20	622	100	100	HBJFJ36
707	841273			697	948			HBFMD57
708	841276			244	423			HBNAE62

709	841277	NADH-UBIQUINONE OXIDOREDUCTASE 39 KD SUBUNIT PRECURSOR (EC 1.6.5.3) (EC 1.6.99.3) (COMPLEX I-39KD) (CI-39KD). >gi|189049 NADH dehydrogenase (ubiquinone) [Homo sapiens] {SUB 3-377} Length = 377	sp|Q16795|NUEM_HUMAN	2	1171	94	94	HBICG75
710	841278	gag polyprotein - human endogenous virus S71 Length = 608	pir|A46312|A46312	119	415	44	56	HATDB46
711	841279			187	645			HPIAF81
712	841280	(AF061513) candidate adaptor protein CED-6 [Caenorhabditis elegans] >sp|O76337|O76337 CANDIDATE ADAPTOR PROTEIN CED-6. Length = 492	gi|3253308	888	1823	50	69	HBCAS37
713	841282			219	368			HATAM48
714	841283			2530	2880			HBAFS89
715	841286	(AC003096) putative protein phosphatase 2C [Arabidopsis thaliana] >sp|O64583|O64583 HYPOTHETICAL 26.4 KD PROTEIN. Length = 239	gi|3132471	201	1319	57	80	HAHCP59
716	841287			3	248			HARMV18
717	841288	(AL021428) hypothetical protein Rv0068 [Mycobacterium tuberculosis] >sp|O53613|O53613 OXIDOREDUCTASE. Length = 303	gnl|PID|e1245998	3	821			HARMM85
718	841291	selenoprotein P [Homo sapiens] Length = 381	gnl|PID|e1192260	293	1012	88	89	HBMCL13
719	841292	SSR gamma subunit [Rattus norvegicus] >pir|S33294|S33294 translocon-associated protein gamma chain - rat Length = 185	gi|312702	2	664	98	98	HARAI52
720	841294	microtubule associated protein [Homo sapiens] >pir|I37356|I37356 epithelial microtubule-associated protein, 115K - human >sp|Q14244|Q14244 MICROTUBULE ASSOCIATED PROTEIN. Length = 749	gi|414115	3	1265	99	99	HAPOR25

721	841296	protein disulfide isomerase-related protein [Homo sapiens] >pir|A23723|A23723 protein disulfide-isomerase (EC 5.3.4.1) ERp72 precursor - human >sp|P13667|ER72_HUMAN PROTEIN DISULFIDE ISOMERASE-RELATED PROTEIN PRECURSOR (ERP72). Length = 645	gi|181508	2	1405	96	96	HASAS34
722	841298	Gps1 [Homo sapiens] >pir|G01646|G01646 Gps1 - human >sp|Q13098|GPS1_HUMAN G PROTEIN PATHWAY SUPPRESSOR 1 (GPS1 PROTEIN) (MFH PROTEIN). {SUB 30-500} Length = 500	gi|644879	3	1067	91	91	HATAI49
723	841301			10	231			HAPNO69
724	841303	synexin [Homo sapiens] >sp|P20073|ANX7_HUMAN ANNEXIN VII (SYNEXIN). Length = 466	gi|338244	3	1457	100	100	HAOMG39
725	841304	(AB000199) CCA2 protein [Rattus norvegicus] >sp|O35048|O35048 CCA2 PROTEIN. Length = 338	dbj||AB000199_1	3	707	89	95	HAPOE40
726	841305			399	1274			HAMHD70
727	841309	similar to RNA binding protein; >sp|Q19706|IF35_CAEEL PROBABLE EUKARYOTIC TRANSLATION INITIATION FACTOR 3 RNA-BINDING SUBUNIT (EIF-3 RNA-BINDING SUBUNIT) (EIF3 P33) (TRANSLATION INITIATION F	gnl|PID|e1345859	137	1699	48	63	HAPAJ60
728	841314			3	920			HAMGN09
729	841316	(AJ224819) tumor suppressor [Homo sapiens] >sp|O60858|O60858 TUMOR SUPPRESSOR. Length = 407	gnl|PID|e1292742	185	1420	93	93	HAJCP55

730	841318	replication control protein 1 [Homo sapiens] >pir|G02329|G02329 replication control protein 1 - human >sp|Q13471|Q13471 REPLICATION CONTROL PROTEIN 1. Length = 861	gi|1171204	170	436	100	100	HAMFQ80
731	841321	hnRNP A2 protein [Homo sapiens] >gnl|PID|d1006583 hnRNP A2 protein [Homo sapiens] >gi|500638 hnRNP protein A2 [Homo sapiens] Length = 341	gi|337449	3	656	100	100	HBJMK69
732	841324	chimeric IFNalpha/beta-receptor [Homo sapiens] >gi|306914 interferon-alpha receptor precursor [Homo sapiens] >pir|A32694|A32694 interferon alpha receptor precursor - human >sp|P17181|INR1_HUMAN INTERFERON-ALPHA/BETA RECEPTOR ALPHA CHAIN PRECURSOR (IFN-ALP	gnl|PID|e251628	31	1755	99	99	HAMGF04
733	841326	Rch1 [Homo sapiens] >gi|899539 hSRP1alpha [Homo sapiens] >pir|A56516|A56516 nuclear localization sequence receptor SRP1 alpha - human >sp|P52292|IMA2_HUMAN IMPORTIN ALPHA-2 SUBUNIT (KARYOPHERIN ALPHA-2 SUBUNIT) (SRP1-ALPHA) (RAG COHORT PROTEIN 1). Length	gi|791185	3	1715	97	97	HAMFV20
734	841328	nuclear ribonucleoprotein [Homo sapiens] >gi|35772 polypirimidine tract binding protein [Homo sapiens] >pir|S26294|S26294 polypyrimidine tract-binding protein - human Length = 557	gi|32354	2	1126	89	89	HAMGF52
735	841329	dJ434P1.3 [Homo sapiens] >gi|1592565 DEAD-box protein p72 [Homo sapiens] >pir|S72367|S72367 ATP-dependent RNA helicase - human >sp|Q92841|P72_HUMAN PROBABLE RNA-DEPENDENT HELICASE	gnl|PID|e1249592	93	671	100	100	HAJBV54

		P72 (DEAD-BOX PROTEIN P72). Length = 650						
736	841330	(AF002228) tbx3 [Homo sapiens] >sp|O15119|O15119 TBX3 (FRAGMENT). Length = 468	gi|3041821	3	1097	91	91	HAJAZ71
737	841333	(AB010882) hSNF2H [Homo sapiens] >sp|O60264|O60264 HSNF2H. Length = 1052	gnl|PID|d1026101	1	2004	92	92	HAJBA64
738	841334	SDF2 [Mus musculus] >pir|JC5105|JC5105 stromal cell-derived factor 2 - mouse >sp|P97307|P97307 STROMAL CELL DERIVED FACTOR 2 (SDF2). Length = 211	gnl|PID|d1009954	3	713	59	71	HAJBE68
739	841335			443	946			HAJAT72
740	841336			1	1557			HAJCD33
741	841337			263	1375			HAJAO95
742	841339	transcription factor SC1 [Homo sapiens] >sp|Q13176|Q13176 TRANSCRIPTION FACTOR SC1. Length = 359	gi|833833	27	740	88	89	HAJCB95
743	841340			820	1017			HAJAD20
744	841341			3	359			HAJAL18
745	841342			1145	1417			HAJAI64
746	841343	cellular nucleic acid binding protein [Mus musculus] >pir|I49259|I49259 cellular nucleic acid binding protein - mouse Length = 178	gi|854675	263	685	100	100	HAMGG35
747	841347	(AF038844) MKP-1 like protein tyrosine phosphatase [Homo sapiens] >sp|G4104681|G4104681 MKP-1 LIKE PROTEIN TYROSINE PHOSPHATASE. Length = 198	gi|4104681	161	409	100	100	HAHSE21

748	841352	ribosomal protein L35 [Homo sapiens] >pir|G01477|G01477 ribosomal protein L35 - human Length = 123	gi|562074	3	461	100	100	HBJJF14
749	841353			73	462			HAICO69
750	841354			115	630			HAPNQ64
751	841360			1	816			HAMFM60
752	841366	FKBP65 binding protein [Mus musculus] >pir|I49669|I49669 FKBP65 binding protein - mouse >sp|Q61576|Q61576 FK506 BINDING PROTEIN 6 (65 KDA) (FKBP65 BINDING PROTEIN). Length = 581	gi|894162	222	1319	92	96	HAMGA45
753	841405	cathepsin O [Homo sapiens] >gi|562757 Cathepsin O [Homo sapiens] >bbs|172248 cathepsin O2 [human, spleen, Peptide, 329 aa] [Homo sapiens] >pir|JC2476|JC2476 cathepsin K (EC 3.4.22.-) precursor - human	gi|606923	24	1106	100	100	HOABW85
754	841526	signal recognition particle receptor beta subunit [Mus musculus] >pir|A56487|A56487 signal recognition particle receptor beta chain - mouse Length = 269	gi|600886	3	848	86	88	HABAD39
755	841712			3	698			HBJJT93
756	841860			1984	2352			HPIAP58
757	842042	DNA-binding protein [Homo sapiens] >pir|S69501|S69501 DNA-binding protein A variant - human >sp|Q14121|Q14121 DNA-BINDING PROTEIN. Length = 372	gnl|PID|e219699	2	817	76	76	HBMXV50
758	842453	mitochondrial ATPase inhibitor [Rattus norvegicus] >gnl|PID|d1002924 ATPase inhibitor protein precursor [Rattus sp.] >pir|JS0738|JS0738 ATPase inhibitor protein precursor, mitochondrial - rat >sp|Q03344|IATP_RAT ATPASE INHIBITOR, MITOCHONDRIAL	gi|517226	13	276	76	88	HBKDV52

		PRECURSOR.						
759	842635			268	936			HFIHI20
760	842927			2	1630			HCE3G66
761	842988			940	1152			HOSAB76
762	843080			2050	2442			HDPBA08
763	843237			370	1359			HETIJ27
764	843381			520	777			HSIGN74
765	843718	(AF010313) Pig8 [Homo sapiens] >sp|O14681|O14681 PIG8. Length = 318	gi|2415302	212	262	100	100	HMEGI84
766	843823			2	1414			HHESF85
767	844056	(AF010187) FGF-1 intracellular binding protein [Homo sapiens] >gi|2738522 (AF010188) FGF-1 intracellular binding protein [Cercopithecus aethiops] >gi|2738520 (AF010187) FGF-1 intracellular binding protein [Homo sapiens] >gi|2738522 (AF010188) FGF-1 intrac	gi|2738520	2	751	100	100	HE8UZ38
768	844325	(AF059569) actin binding protein MAYVEN [Homo sapiens] >sp|G3789797|G3789797 ACTIN BINDING PROTEIN MAYVEN. Length = 593	gi|3789797	46	1056	37	61	HPRSB90
769	844344	heparin-binding fibroblast growth factor receptor 2 [Rattus norvegicus] >sp|Q63241|Q63241 HEPARIN-BINDING FIBROBLAST GROWTH FACTOR RECEPTOR 2 (FRAGMENT). {SUB 1-330} Length = 331	gi|310149	1	303	40	60	HBJNC37
770	844368	15 KDA SELENOPROTEIN. Length = 162	sp|O60613|O60613	3	374	91	91	HAGHY70

771	844408	(AF001437) dihydrolipoamide dehydrogenase-binding protein [Homo sapiens] Length = 501	gi|2316040	1358	1651	100	100	HTNAD87
772	844508			1	300			HADGG65
773	844867			174	371			HMVBJ82
774	845000			1	321			HE9DB89
775	845281	pre-pro polypeptide (AA -25 to 451) [Homo sapiens] >pir|S09489|S09489 carboxypeptidase H (EC 3.4.17.10) precursor - human >sp|P16870|CBPH_HUMAN CARBOXYPEPTIDASE H PRECURSOR (EC 3.4.17.10) (CPH) (CARBOXYPEPTIDASE E) (CPE) (ENKEPHALIN CONVERTASE) (PROHORMON	gi|29667	3	1475	100	100	HEGAE94
776	845288	(AF023268) propin1 [Homo sapiens] Length = 347	gi|2564915	571	1107	75	76	HTLDM37
777	845750	selenium-binding protein [Homo sapiens] >pir|G01872|G01872 selenium-binding protein - human >sp|Q13228|Q13228 SELENIUM-BINDING PROTEIN. Length = 472	gi|1374792	3	1499	95	96	HE9DH28
778	845809	SNAP23A protein [Homo sapiens] >gnl|PID|e1331767 (AJ011915) synaptosome associated protein of 23 kilodaltons, isoform A [Homo sapiens] >pir|JC5296|JC5296 vesicle-membrane fusion protein SNAP-23A - human >sp|O00161|O00161 VESICLE-MEMBRANE FUSION PROTEIN SN	gnl|PID|e290695	134	772	100	100	HRGSE41
779	846077			182	487			HCNCN11
780	HPFCH77R			21	80			HPFCH77
781	HPRTI05R			2	151			HPRTI05
782	HMSKI93R			25	192			HMSKI93

783	HKAAC88R	(AB003103) 26S proteasome subunit p55 [Homo sapiens] >sp|O00232|O00232 PROTEASOME SUBUNIT P55. Length = 456	gnl|PID|d1020530	1	333	85	88	HKAAC88
784	HPDED94R	(AF001212) 26S proteasome subunit 9 [Homo sapiens] >sp|O00495|O00495 26S PROTEASOME SUBUNIT 9. Length = 422	gi|2150046	1	225	98	98	HPDED94
785	HDTGH11R	(AF009674) axin [Homo sapiens] >sp|O15169|O15169 AXIN (FRAGMENT). Length = 900	gi|2252820	1	189	96	96	HDTGH11
786	HTEJR60R	(AF022184) EZF [Homo sapiens] >sp|O43474|EZF_HUMAN EPITHELIAL ZINC-FINGER PROTEIN EZF. Length = 470	gi|2897954	2	511	77	77	HTEJR60
787	HAGGY86R	(AF029786) GBAS [Homo sapiens] >sp|O75323|O75323 GBAS. Length = 286	gi|3403167	2	295	97	98	HAGGY86
788	HPIAU47R	(AF031647) JAB1-containing signalosome subunit 3 [Homo sapiens] >sp|O43191|O43191 SIGNALOSOME SUBUNIT 3. Length = 403	gi|2688989	3	377	89	91	HPIAU47
789	HCGAD89R	(AF074935) beta-tubulin [Cryptosporidium parvum] >gi|3328337 (AF074936) beta-tubulin [Cryptosporidium parvum] >sp|O77467|O77467 BETA-TUBULIN (FRAGMENT). Length = 57	gi|3328335	226	390	86	89	HCGAD89
790	HAPOD39R	(AF089866) keratin 19 [Rattus norvegicus] >sp|G3766220|G3766220 KERATIN 19 (FRAGMENT). Length = 123	gi|3766220	3	386	88	93	HAPOD39
791	HOGAA68R	5' half of the product is homologues to Bacillus subtiis SAICAR synthetase, 3' half corresponds to the catalytic subunit of AIR carboxylase [Homo sapiens] >pir|S14147|S14147 multifunctional purine biosynthesis protein - human Length = 425	gi|28384	1	468	95	97	HOGAA68

792	HCLBO46R	Actin [Drosophila melanogaster] >pir|S14851|S14851 actin - fruit fly (Drosophila melanogaster) >sp|Q24228|Q24228 ACTIN. Length = 100	gi|7550	1	303	94	95	HCLBO46
793	HDRAA14R	ADP,ATP carrier protein T2 - human >sp|P12236|ADT3_HUMAN ADP,ATP CARRIER PROTEIN, LIVER ISOFORM T2 (ADP/ATP TRANSLOCASE 3) (ADENINE NUCLEOTIDE TRANSLOCATOR 3) (ANT 3). Length = 298	pir|S03894|S03894	2	304	80	92	HDRAA14
794	HSLCA48R	alpha-1 (III) collagen [Homo sapiens] Length = 1078	gi|930045	2	457	70	75	HSLCA48
795	HMEAC81R	alpha-subunit of G-protein, type G-alpha-i-1 [Xenopus laevis] >pir|S11045|RGXLI1 GTP-binding regulatory protein Gi alpha-1 chain (adenylate cyclase-inhibiting) - African clawed frog >sp|P27044|GBI1_XENLA GUANINE NUCLEOTIDE-BINDING PROTEIN G(I), ALPHA-1 SU	gi|64708	99	176	92	92	HMEAC81
796	HMQDF20R	beta-1,2-N-acetylglucosaminyltransferase II [Homo sapiens] >pir|S66256|S66256 alpha-1,6-mannosyl-glycoprotein beta-1, 2-N-acetylglucosaminyltransferase (EC 2.4.1.143) - human >sp|Q10469|GNT2_HUMAN ALPHA-1,6-MANNOSYL-GLYCOPROTEIN BETA-1,2-N- ACETYLGLUCOSAM	gi|902745	3	287	85	85	HMQDF20
797	HCHOH06R			12	242			HCHOH06
798	HDQMC20R			3	167			HDQMC20
799	HMKCW11R			2	112			HMKCW11

800	HLDRN91R	C4b-binding protein alpha chain [Homo sapiens] >gi|190502 C4b-binding protein alpha chain [Homo sapiens] >pir|A33568|NBHUC4 C4b-binding protein alpha chain precursor - human >sp|P04003|C4BP_HUMAN C4B-BINDING PROTEIN ALPHA CHAIN PRECURSOR (PROLINE-RICH PRO	gi|190500	2	331	99	100	HLDRN91
801	HCHBR17R	cathepsin D [Homo sapiens] >gi|29678 precursor polypeptide (AA -20 to 392) [Homo sapiens] >gi|181180 preprocathepsin D [Homo sapiens] >pir|A25771|KHHUD cathepsin D (EC 3.4.23.5) precursor - human >sp|P07339|CATD_HUMAN CATHEPSIN D PRECURSOR (EC 3.4.23.5).	gi|179948	3	149	92	92	HCHBR17
802	HMKCH15R	Cbf5p homolog [Homo sapiens] Length = 514	gi|2737894	131	400	81	81	HMKCH15
803	HE6GO78R	clathrin light-chain A [Homo sapiens] Length = 218	gi|307118	155	502	80	83	HE6GO78
804	HSLFI56R	complement component C3 [Homo sapiens] >pir|A94065|C3HU complement C3 precursor - human >sp|P01024|CO3_HUMAN COMPLEMENT C3 PRECURSOR [CONTAINS: C3A ANAPHYLATOXIN]. >gi|181130 complement component C3 [Homo sapiens] {SUB 1-24} Length = 1663	gi|179665	48	422	80	82	HSLFI56
805	HSYBY17R	cyclin G [Homo sapiens] >gi|1236233 cyclin G1 [Homo sapiens] >gi|1236913 cyclin G1 [Homo sapiens] >pir|G02401|G02401 cyclin G1 - human >sp|P51959|CG2G_HUMAN G2/MITOTIC-SPECIFIC CYCLIN G1. >gnl|PID|d1013694 cyclin G [Homo sapiens] {SUB 1-279} >gi|1486361 c	gnl|PID|d1012016	79	300	100	100	HSYBY17

806	HPJCS07R	cytochrome oxidase I [Apteryx australis] >sp|O03515|COX1_APTAU CYTOCHROME C OXIDASE POLYPEPTIDE I (EC 1.9.3.1) (FRAGMENT). Length = 337	gi|2198683	113	226	83	92	HPJCS07
807	HFADV82R	cytochrome oxidase III [Homo sapiens] >pir|A00482|OTHU3 cytochrome-c oxidase (EC 1.9.3.1) chain III - human mitochondrion (SGC1) >sp|P00414|COX3_HUMAN CYTOCHROME C OXIDASE POLYPEPTIDE III (EC 1.9.3.1). >gi|2245564 (AF004341) cytochrome c oxidase subunit I	gi|13010	1	105	81	83	HFADV82
808	HFKFH08R	DNA polymerase delta small subunit [Homo sapiens] >pir|I38950|I38950 DNA-directed DNA polymerase (EC 2.7.7.7) delta regulatory chain - human >sp|P49005|DPD_HUMAN DNA POLYMERASE DELTA SMALL SUBUNIT (EC 2.7.7.7). Length = 469	gi|1008458	2	550	97	98	HFKFH08
809	HMCDK47R	electron transport flavoprotein [Homo sapiens] >pir|A31998|A31998 electron transfer flavoprotein alpha chain precursor - human >sp|P13804|ETFA_HUMAN ELECTRON TRANSFER FLAVOPROTEIN ALPHA-SUBUNIT PRECURSOR (ALPHA-ETF). >gnl|PID|e1331769 (AJ224002) electron	gi|182251	3	320	100	100	HMCDK47
810	HPIBI27R	elongation factor 2 [Homo sapiens] >gi|31108 human elongation factor 2 [Homo sapiens] >pir|S18294|EFHU2 translation elongation factor eEF-2 - human >sp|P13639|EF2_HUMAN ELONGATION FACTOR 2 (EF-2). >gi|181969 elongation factor 2 [Homo sapiens] {SUB 501-858	gi|31106	23	319	98	98	HPIBI27

811	HSKJG37R	elongation factor 2 [Homo sapiens] >gi|31108 human elongation factor 2 [Homo sapiens] >pir|S18294|EFHU2 translation elongation factor eEF-2 - human >sp|P13639|EF2_HUMAN ELONGATION FACTOR 2 (EF-2). >gi|181969 elongation factor 2 [Homo sapiens] {SUB 501-858	gi|31106	1	372	100	100	HSKJG37
812	H2LAZ24R	elongation factor-1-beta [Homo sapiens] >gi|31135 elongation factor 1-beta [Homo sapiens] >pir|S25432|S25432 translation elongation factor eEF-1 beta chain - human >sp|P24534|EF1B_HUMAN ELONGATION FACTOR 1-BETA (EF-1-BETA). {SUB 2-225} Length = 225	gi|31100	23	562	100	100	H2LAZ24
813	H2LAC50R	enhancer protein [Homo sapiens] >pir|I54533|I54533 enhancer protein - human Length = 199	gi|440306	38	415	100	100	H2LAC50
814	HPEAE15R	GLANDULAR KALLIKREIN-1. Length = 223	sp|Q15946|Q15946	51	236	80	80	HPEAE15
815	HPIAA24R	GTP-binding protein Ran/TC4 - mouse (fragment) Length = 70	pir|JH0654|JH0654	382	507	91	91	HPIAA24
816	H2LAS11R	guanylate cyclase (EC 4.6.1.2) - bovine (fragment) >gi|407777 guanylate cyclase [Bos taurus] {SUB 2-498} Length = 498	pir|S48119|S48119	28	549	100	100	H2LAS11
817	HHERW66R	HMG1 protein (AA 1 - 215) [Bos taurus] >pir|S01947|S01947 nonhistone chromosomal protein HMG-1 - bovine >sp|P10103|HMG1_BOVIN HIGH MOBILITY GROUP PROTEIN HMG1 (HMG-1). {SUB 2-215} Length = 215	gi|417	3	386	83	83	HHERW66

818	HADMC73R	hMn-superoxiddismutase [unidentified] >gi|491292 hMN-superoxiddismutase [unidentified] >gnl|PID|e93456 Mn-superoxiddismutase [Homo sapiens] {SUB 23-199} Length = 199	gi|491290	2	94	96	100	HADMC73
819	H6EEU22R	hormone receptor hERR1 (AA 1-521) [Homo sapiens] >pir|A29345|A29345 steroid hormone receptor ERR1 precursor - human >sp|P11474|ERR1_HUMAN STEROID HORMONE RECEPTOR ERR1 (ESTROGEN-RELATED RECEPTOR, ALPHA) (ESTROGEN RECEPTOR-LIKE 1). Length = 521	gi|36609	34	225	100	100	H6EEU22
820	HDTDX66R	HP1Hs-gamma [Homo sapiens] >sp|Q13185|HP1G_HUMAN HETEROCHROMATIN PROTEIN 1 HOMOLOG GAMMA (HP1 GAMMA) (MODIFIER 2 PROTEIN). >sp|G1773227|G1773227 HP1HS-GAMMA. Length = 173	gi|1773227	132	449	82	84	HDTDX66
821	HLPBB39R	human metallothionein-Ie [Homo sapiens] >pir|A22634|SMHU1E metallothionein 1E - human >sp|P04732|MT1E_HUMAN METALLOTHIONEIN-IE (MT-1E). >bbs|144157 metallothionein MT-1e isoform, metallothionein-1e [human, monocytes, Peptide Partial, 31 aa] [Homo sapiens]	gi|386865	40	246	100	100	HLPBB39
822	HOELG04R	hypothetical 18K protein (rRNA) - goldfish mitochondrion (SGC1) Length = 166	pir|JC1348|JC1348	293	415	65	68	HOELG04

823	HKABU38R	initation factor 4B [Homo sapiens] >pir|S12566|S12566 translation initiation factor eIF-4B - human >sp|P23588|IF4B_HUMAN EUKARYOTIC TRANSLATION INITIATION FACTOR 4B (EIF-4B). Length = 611	gi|288100	2	463	92	92	HKABU38
824	HBGOI32R	keratin 18 [Homo sapiens] >gi|307081 keratin 18 precursor [Homo sapiens] >gi|34037 cytokeratin 18 [Homo sapiens] >pir|S05481|S05481 keratin 18, type I, cytoskeletal - human >sp|P05783|K1CR_HUMAN KERATIN, TYPE I CYTOSKELETAL 18 (CYTOKERATIN 18) (K18) (CK 1	gi|386844	1	240	66	67	HBGOI32
825	HATAI03R	KIAA0106 [Homo sapiens] >sp|P30041|AOP2_HUMAN ANTIOXIDANT PROTEIN 2 (EC 1.11.1.7) (24 KD PROTEIN) (LIVER 2D PAGE SPOT 40) (RED BLOOD CELLS PAGE SPOT 12). {SUB 2-224} Length = 224	gnl|PID|d1004007	3	194	90	93	HATAI03
826	HCEDE25R	KIAA0106 [Homo sapiens] >sp|P30041|AOP2_HUMAN ANTIOXIDANT PROTEIN 2 (EC 1.11.1.7) (24 KD PROTEIN) (LIVER 2D PAGE SPOT 40) (RED BLOOD CELLS PAGE SPOT 12). {SUB 2-224} Length = 224	gnl|PID|d1004007	2	283	100	100	HCEDE25
827	HKDBF62R	metallothionein-IG [Homo sapiens] >pir|A29236|SMHU1G metallothionein 1G - human >sp|P13640|MT1G_HUMAN METALLOTHIONEIN-IG (MT-1G). >bbs|144160 metallothionein MT-1g isoform, metallothionein-1g [human, monocytes, Peptide Partial, 31 aa] [Homo sapiens] {SUB	gi|188713	170	322	95	95	HKDBF62

828	HNTSX94R	mitochondrial matrix protein [Homo sapiens] >pir|A32800|A32800 chaperonin GroEL precursor - human >sp|P10809|P60_HUMAN MITOCHONDRIAL MATRIX PROTEIN PI PRECURSOR (P60 LYMPHOCYTE PROTEIN) (60 KD CHAPERONIN) (HEAT SHOCK PROTEIN 60) (HSP-60) (PROTEIN CPN60) (	gi|190127	3	431	97	100	HNTSX94
829	HRGBR08R	mitochondrial matrix protein [Homo sapiens] >pir|A32800|A32800 chaperonin GroEL precursor - human >sp|P10809|P60_HUMAN MITOCHONDRIAL MATRIX PROTEIN PI PRECURSOR (P60 LYMPHOCYTE PROTEIN) (60 KD CHAPERONIN) (HEAT SHOCK PROTEIN 60) (HSP-60) (PROTEIN CPN60) (	gi|190127	1	504	94	94	HRGBR08
830	H2LAO77R	MSS1 protein [Homo sapiens] >pir|S24353|S24353 proteasome 26S subunit MSS1 - human >sp|G385267|G385267 26 S PROTEASE SUBUNIT 7, MSS1=MODULATOR OF HIV TAT-MEDIATED TRANSACTIVATION. {SUB 2-23} Length = 433	gnl|PID|d1002345	137	580	91	91	H2LAO77
831	HNTRW15R	NAD+ ADP-ribosyltransferase [Homo sapiens] >pir|A29725|A29725 NAD+ ADP-ribosyltransferase (EC 2.4.2.30), nuclear - human >sp|P09874|PPOL_HUMAN POLY [ADP-RIBOSE] POLYMERASE (EC 2.4.2.30) (PARP) (ADPRT) (NAD(+) ADP-RIBOSYLTRANSFERASE) (POLY[ADP-RIBOSE] SYN	gi|178190	163	297	90	96	HNTRW15

<table>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>832</td><td>HORBH08R</td><td>NADH dehydrogenase (ubiquinone) (EC 1.6.5.3) 51K chain precursor - human (fragment) >sp|P49821|NUBM_HUMAN NADH-UBIQUINONE OXIDOREDUCTASE 51 KD SUBUNIT PRECURSOR (EC 1.6.5.3) (EC 1.6.99.3) (COMPLEX I-51KD) (CI-51KD) (FRAGMENT). >bbs|142159 NADH:ubiquinone</td><td>pir|A44362|A44362</td><td>186</td><td>428</td><td>83</td><td>87</td><td>HORBH08</td></tr>
<tr><td>833</td><td>HULBL38R</td><td>nonstructural protein P125-2 [pestivirus type 1] >sp|O57114|O57114 NONSTRUCTURAL PROTEIN P125-2 (FRAGMENT). Length = 239</td><td>gi|2707597</td><td>3</td><td>437</td><td>95</td><td>97</td><td>HULBL38</td></tr>
<tr><td>834</td><td>HNTBK49R</td><td>p60 [Homo sapiens] >sp|Q13446|Q13446 EBI3-ASSOCIATED PROTEIN P60. >gi|3283216 (AF060494) ubiquitin binding protein p62 [Homo sapiens] {SUB 1-72} Length = 440</td><td>gi|1145799</td><td>3</td><td>368</td><td>100</td><td>100</td><td>HNTBK49</td></tr>
<tr><td>835</td><td>HBAFS48R</td><td>Phalaenopsis sp. 'hybrid SM9108' actin [Phalaenopsis sp. 'hybrid SM9108'] >sp|Q40981|Q40981 ACTIN (FRAGMENT). Length = 208</td><td>gi|602958</td><td>2</td><td>316</td><td>91</td><td>92</td><td>HBAFS48</td></tr>
<tr><td>836</td><td>HHGAL60R</td><td>PIPPin protein [Rattus norvegicus] >pir|JC4588|JC4588 RNA-binding protein PIPPin - rat >sp|Q63430|Q63430 PIPPIN PROTEIN. Length = 154</td><td>gi|1050754</td><td>2</td><td>319</td><td>66</td><td>81</td><td>HHGAL60</td></tr>
<tr><td>837</td><td>HOHBU75R</td><td>prepro-alpha-1 collagen [Homo sapiens] >sp|Q15201|Q15201 PREPRO-ALPHA-1 COLLAGEN PRECURSOR (FRAGMENT). Length = 181</td><td>gi|35658</td><td>104</td><td>373</td><td>71</td><td>72</td><td>HOHBU75</td></tr>
<tr><td>838</td><td>HHEFZ79R</td><td>progesterone-induced protein [Oryctolagus cuniculus] >pir|A26998|A26998 progesterone-induced protein, endometrial - rabbit Length = 370</td><td>gi|165009</td><td>293</td><td>484</td><td>73</td><td>77</td><td>HHEFZ79</td></tr>
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839	HSLBA61R	proteasome subunit C5 [Homo sapiens] >gnl|PID|e1334433 (AL031259) C5 (proteasome subunit HC5) [Homo sapiens] >pir|S15973|SNHUC5 multicatalytic endopeptidase complex (EC 3.4.99.46) chain C5 - human >sp|P20618|PRC5_HUMAN PROTEASOME COMPONENT C5 (EC 3.4.99.4	gnl|PID|d1001116	45	224	96	96	HSLBA61
840	HPEAE18R	put. ORF [Homo sapiens] >pir|I38022|I38022 hypothetical protein - human >sp|Q29976|Q29976 MAHLAVU HEPATOCELLULAR CARCINOMA HHC(M) DNA. Length = 196	gi|288145	55	234	57	67	HPEAE18
841	HNGFO65R	ren(exclusion;96) [Bacteriophage lambda] >pir|F43010|ZRBPL ren protein - phage lambda Length = 96	gi|215152	3	203	48	59	HNGFO65
842	HKAKR61R	ribosmal protein small subunit [Homo sapiens] Length = 264	gi|306553	3	458	91	91	HKAKR61
843	H2LAP11R	ribosomal phosphoprotein P1 (AA 1-114) [Rattus rattus] >pir|S08022|R5RT12 acidic ribosomal protein P1 - rat Length = 114	gi|57710	169	549	100	100	H2LAP11
844	H2CBD90R	ribosomal protein L10 [Homo sapiens] >sp|D1026771|D1026771 RIBOSOMAL PROTEIN L15 (FRAGMENT). {SUB 16-57} Length = 205	gi|414587	199	501	95	95	H2CBD90
845	H2LAD40R	ribosomal protein L15 gene product [Rattus norvegicus] >pir|JC2369|JC2369 ribosomal protein L15 - rat Length = 204	gi|515865	156	524	100	100	H2LAD40

846	HCYBK51R	ribosomal protein L37 [Homo sapiens] >bbs|172744 ribosomal protein L37 {C2-C2 zinc-finger-like} [human, HeLa cells, Peptide, 97 aa] [Homo sapiens] >gnl|PID|d1005426 ribosomal protein L37 [Homo sapiens] >gi|57121 ribosomal protein L37 [Rattus norvegicus] >	gi|292441	2	412	97	98	HCYBK51
847	H2MBC73R	ribosomal protein L37a [Homo sapiens] >gi|36134 ribosomal protein L37a [Homo sapiens] >gi|57123 ribosomal protein L37a (AA 1 - 92) [Rattus rattus] >gi|312414 ribosomal protein L37a [Mus musculus] >pir|S05014|R5RT37 ribosomal protein L37a - rat >pir|S42109	gi|292439	2	385	100	100	H2MBC73
848	H2MBU27R	ribosomal protein L37a [Homo sapiens] >gi|36134 ribosomal protein L37a [Homo sapiens] >gi|57123 ribosomal protein L37a (AA 1 - 92) [Rattus rattus] >gi|312414 ribosomal protein L37a [Mus musculus] >pir|S05014|R5RT37 ribosomal protein L37a - rat >pir|S42109	gi|292439	2	286	100	100	H2MBU27
849	HDSAH53R	ribosomal protein L37a [Homo sapiens] >gi|36134 ribosomal protein L37a [Homo sapiens] >gi|57123 ribosomal protein L37a (AA 1 - 92) [Rattus rattus] >gi|312414 ribosomal protein L37a [Mus musculus] >pir|S05014|R5RT37 ribosomal protein L37a - rat >pir|S42109	gi|292439	3	341	97	97	HDSAH53
850	HAIDF69R	ribosomal protein L7a [Fugu rubripes] Length = 266	gnl|PID|e1248480	179	250	93	100	HAIDF69

<table>
<tr><td>851</td><td>HDBAA15R</td><td>ribosomal protein L8 [Homo sapiens] >gi|57704 ribosomal protein L8 [Rattus rattus] >gi|1527178 ribosomal protein L8 [Mus musculus] >pir|JU0177|R5RTL8 ribosomal protein L8, cytosolic - rat >pir|JN0923|JN0923 ribosomal protein L8, cytosolic - human >gi|3851</td><td>gi|433899</td><td>220</td><td>429</td><td>85</td><td>88</td><td>HDBAA15</td></tr>
<tr><td>852</td><td>HDTHW54R</td><td>ribosomal protein S12 (AA 1 - 132) [Mus musculus] >pir|S13074|R3RT12 ribosomal protein S12 - rat >pir|S05492|R3MS12 ribosomal protein S12 - mouse >gi|206741 ribosomal protein S12 [Rattus norvegicus] {SUB 1-130} Length = 132</td><td>gi|54006</td><td>3</td><td>332</td><td>89</td><td>89</td><td>HDTHW54</td></tr>
<tr><td>853</td><td>HTWJC11R</td><td>ribosomal protein S13 [Homo sapiens] >gi|488417 ribosomal protein S13 [Homo sapiens] >gnl|PID|d1014222 ribosomal protein S13 [Homo sapiens] >gi|57730 ribosomal protein S13 [Rattus rattus] >pir|S34109|S34109 ribosomal protein S13, cytosolic - human >pir|A3</td><td>gi|307391</td><td>1</td><td>276</td><td>97</td><td>97</td><td>HTWJC11</td></tr>
<tr><td>854</td><td>HKAEC40R</td><td>ribosomal protein S24 [Homo sapiens] >gi|517222 ribosomal protein S24 [Homo sapiens] >gi|49652 ribosomal protein S19 (AA 1 - 133) [Mesocricetus auratus] >gi|57858 ribosomal protein S24 [Rattus norvegicus] >gi|57722 ribosomal protein S24 (AA 1-133) [Rattus</td><td>gi|337506</td><td>93</td><td>407</td><td>83</td><td>84</td><td>HKAEC40</td></tr>
<tr><td>855</td><td>HCFNM70R</td><td>ribosomal protein S4X isoform [Homo sapiens] >gi|2791861 (AF041428) ribosomal protein s4 X isoform [Homo sapiens] >gi|200864 ribosomal protein S4 [Mus musculus] >gi|57135 ribosomal protein S4 (AA 1 - 263) [Rattus rattus] >gnl|PID|d1002335 ribosomal protei</td><td>gi|337510</td><td>3</td><td>278</td><td>96</td><td>97</td><td>HCFNM70</td></tr>
</table>

856	HKBAB93R	ribosomal protein S8 [Homo sapiens] >gi|57139 ribosomal protein S8 (AA 1-208) [Rattus norvegicus] >gi|313298 ribosomal protein S8 [Mus musculus] >pir|S01609|R3RT8 ribosomal protein S8 - rat >pir|S42110|S42110 ribosomal protein S8 - mouse >pir|S25022|S2502	gi|36150	2	391	87	90	HKBAB93
857	HLHEJ79R	RNA polymerase II subunit hRPB17 [Homo sapiens] >pir|S55370|S55370 RNA polymerase II chain hRPB17 - human Length = 150	gi|854177	129	446	83	86	HLHEJ79
858	HBGOI24R	S19 ribosomal protein [Homo sapiens] >pir|I52692|I52692 ribosomal protein S19, cytosolic - human Length = 145	gi|337733	2	421	99	100	HBGOI24
859	HNDAD16R	secretory protein [Homo sapiens] >gi|940946 intestinal trefoil factor [Homo sapiens] >pir|A48284|A48284 intestinal trefoil factor 3 precursor - human >sp|Q07654|ITF_HUMAN INTESTINAL TREFOIL FACTOR PRECURSOR (HP1.B). Length = 80	gi|402483	3	380	71	78	HNDAD16
860	HMAEA94R	serine/threonine protein kinase [Homo sapiens] >gnl|PID|e1154172 (AJ000512) serine/threonine protein kinase [Homo sapiens] Length = 431	gnl|PID|e293330	3	422	95	95	HMAEA94
861	HMWEA08R	signal recognition particle subunit 9 [Homo sapiens] >pir|A57292|A57292 signal recognition particle protein SRP9 - human Length = 86	gi|897851	119	394	90	93	HMWEA08
862	H6BSO48R	similar to Drosophila photoreceptor cell-specific protein, calphotin. [Homo sapiens] >sp|Q14676|Q14676 KIAA0170 PROTEIN. Length = 2089	gnl|PID|d1012153	1	528	95	95	H6BSO48

863	HRACC09R	smooth muscle protein [Homo sapiens] >pir|JS0774|JS0774 smooth muscle protein SM22 - human Length = 201	gi|177175	1	117	100	100	HRACC09
864	HOEEC67R	smooth muscle protein SM22 homolog - mouse Length = 201	pir|A60598|A60598	105	230	100	100	HOEEC67
865	HPFEA40R	t-complex polypeptide 1 (AA 1-556) [Homo sapiens] Length = 556	gi|36796	3	497	98	99	HPFEA40
866	HODAV31R	tissue inhibitor of metalloproteinases [Homo sapiens] Length = 166	gnl|PID|d1002390	1	273	64	67	HODAV31
867	HHEC189R	transaldolase [Homo sapiens] >gi|2612879 (AF010400) transaldolase-related protein [Homo sapiens] >sp|O00751|O00751 TRANSALDOLASE (EC 2.2.1.2). >gi|1480787 transaldolase [Homo sapiens] {SUB 302-337} Length = 337	gi|2073541	3	371	99	99	HHEC189
868	HSDFV03R	translocase [Bos taurus] >pir|B43646|B43646 ADP,ATP carrier protein T2 - bovine >sp|P32007|ADT3_BOVIN ADP,ATP CARRIER PROTEIN, ISOFORM T2 (ADP/ATP TRANSLOCASE 3) (ADENINE NUCLEOTIDE TRANSLOCATOR 3) (ANT 3). Length = 298	gi|529417	20	412	92	96	HSDFV03
869	HTXPN01R	triose-phosphate isomerase [Pan troglodytes] >gi|37247 triosephosphate isomerase [Homo sapiens] >gi|1200507 triosephosphate isomerase [Homo sapiens] >gi|339841 triosephosphate isomerase (EC 5.3.1.1) [Homo sapiens] >pir|S29743|ISHUT triose-phosphate isomer	gi|176960	3	281	98	98	HTXPN01
870	HHPSA49R	tuberin [Homo sapiens] Length = 1784	gi|450352	2	451	69	69	HHPSA49
871	H2LAT88R	type II mesothelial keratin K7 [Homo sapiens] >sp|Q92676|Q92676 MESOTHELIAL KERATIN K7 (TYPE II) (FRAGMENT). Length = 489	gi|386851	1	567	91	91	H2LAT88

872	H6EAD58R	49	174	H6EAD58
873	HACBH95R	2	364	HACBH95
874	HACBY16R	1	84	HACBY16
875	HAGCI33R	2	238	HAGCI33
876	HAHAD34R	61	123	HAHAD34
877	HAJAN69R	67	294	HAJAN69
878	HALSG52R	41	268	HALSG52
879	HAPPR17R	180	311	HAPPR17
880	HAQCG78R	3	110	HAQCG78
881	HAUBY86R	23	118	HAUBY86
882	HAVAA34R	1	117	HAVAA34
883	HBAFK20R	2	355	HBAFK20
884	HBGBE20R	31	315	HBGBE20
885	HBJBR66R	2	52	HBJBR66
886	HBJMU59R	2	208	HBJMU59
887	HBKDK63R	147	647	HBKDK63
888	HBMVT43R	2	70	HBMVT43
889	HCDAM59R	21	125	HCDAM59
890	HCFLN25R	3	224	HCFLN25
891	HCQAW59R	1	129	HCQAW59
892	HDPMA46R	223	420	HDPMA46
893	HDTAQ26R	177	296	HDTAQ26
894	HDTAT40R	1	213	HDTAT40
895	HDTLD39R	323	496	HDTLD39
896	HE2PO63R	39	278	HE2PO63
897	HELCV09R	1	72	HELCV09
898	HELHK95R	3	383	HELHK95
899	HEMGL70R	2	172	HEMGL70
900	HETIB72R	2	100	HETIB72
901	HFFAS19R	2	256	HFFAS19
902	HFIYH65R	68	259	HFIYH65

903	HFXAF89R	143	361	HFXAF89
904	HHEPR03R	89	307	HHEPR03
905	HHGAQ80R	2	202	HHGAQ80
906	HHSEF82R	170	304	HHSEF82
907	HKBAA63R	239	469	HKBAA63
908	HKIXO47R	2	94	HKIXO47
909	HLDNF70R	3	176	HLDNF70
910	HLQFO33R	62	268	HLQFO33
911	HLWBC80R	46	543	HLWBC80
912	HLYAV50R	3	224	HLYAV50
913	HMEKY67R	3	302	HMEKY67
914	HMTBN58R	3	377	HMTBN58
915	HNGAZ91R	22	276	HNGAZ91
916	HNTAC06R	2	133	HNTAC06
917	HOGAF41R	1	228	HOGAF41
918	HOUDQ92R	75	323	HOUDQ92
919	HPEAD91R	60	233	HPEAD91
920	HPIAF72R	128	310	HPIAF72
921	HPIAU01R	122	334	HPIAU01
922	HPIAU73R	99	275	HPIAU73
923	HPIAW19R	102	350	HPIAW19
924	HPIAZ19R	238	348	HPIAZ19
925	HPIBA31R	245	367	HPIBA31
926	HPIBS06R	84	182	HPIBS06
927	HPICB65R	2	430	HPICB65
928	HPJBF22R	220	330	HPJBF22
929	HPJBZ81R	214	384	HPJBZ81
930	HRACF81R	1	189	HRACF81
931	HRACT28R	110	319	HRACT28
932	HSBAP03R	123	263	HSBAP03
933	HSDJK57R	234	458	HSDJK57

934	HSIFY54R			1	321			HSIFY54
935	HSLDJ92R			24	275			HSLDJ92
936	HSLJI47R			185	379			HSLJI47
937	HTSGE55R			36	209			HTSGE55
938	HUFAT72R			276	410			HUFAT72
939	HULAI70R			176	337			HULAI70
940	HTGFW12R	yeast mismatch repair gene PMS1 homologue [Homo sapiens] >gnl|PID|d1008050 homologue of yeast PMS1 [Homo sapiens] >sp|Q16530|Q16530 PMS3 MRNA (YEAST MISMATCH REPAIR GENE PMS1 HOMOLOGUE), PARTIAL CDS (C-TERMINAL REGION) (FRAGMENT). Length = 256	gnl|PID|d1008092	3	233	94	97	HTGFW12

The first column of Table 1 shows the "SEQ ID NO:" for each of the 940 prostate cancer antigen polynucleotide sequences of the invention.

The second column in Table 1, provides a unique "Sequence/Contig ID" identification for each prostate and/or prostate cancer associated sequence. The third column in Table 1, "Gene Name," provides a putative identification of the gene based on the sequence similarity of its translation product to an amino acid sequence found in a publicly accessible gene database, such as GenBank (NCBI). The great majority of the cDNA sequences reported in Table 1 are unrelated to any sequences previously described in the literature. The fourth column, in Table 1, "Overlap," provides the database accession no. for the database sequence having similarity. The fifth and sixth columns in Table 1 provide the location (nucleotide position nos. within the contig), "Start" and "End", in the polynucleotide sequence "SEQ ID NO:X" that delineate the preferred ORF shown in the sequence listing as SEQ ID NO:Y. In one embodiment, the invention provides a protein comprising, or alternatively consisting of, a polypeptide encoded by the portion of SEQ ID NO:X delineated by the nucleotide position nos. "Start" and "End". Also provided are polynucleotides encoding such proteins and the complementary strand thereto. The seventh and eighth columns provide the "% Identity" (percent identity) and "% Similarity" (percent similarity) observed between the aligned sequence segments of the translation product of SEQ ID NO:X and the database sequence.

The ninth column of Table 1 provides a unique "Clone ID" for a clone related to each contig sequence. This clone ID references the cDNA clone which contains at least the 5' most sequence of the assembled contig and at least a portion of SEQ ID NO:X was determined by directly sequencing the referenced clone. The reference clone may have more sequence than described in the sequence listing or the clone may have less. In the vast majority of cases, however, the clone is believed to encode a full-length polypeptide. In the case where a clone is not full-length, a full-length cDNA can be obtained by methods described elsewhere herein.

Table 3 indicates public ESTs, of which at least one, two, three, four, five, ten, or more of any one or more of these public ESTs are optionally excluded from the invention.

SEQ ID NO:X (where X may be any of the polynucleotide sequences disclosed in the sequence listing as SEQ ID NO:1 through SEQ ID NO:940) and the translated SEQ ID NO:Y (where Y may be any of the polypeptide sequences disclosed in the sequence listing as SEQ ID NO:941 through SEQ ID NO:1880) are sufficiently accurate and otherwise suitable for a

variety of uses well known in the art and decribed further below. For instance. SEQ ID NO:X has uses including, but not limited to, in designing nucleic acid hybridization probes that will detect nucleic acid sequences contained in SEQ ID NO:X or the related cDNA clone contained in a library deposited with the ATCC. These probes will also hybridize to nucleic acid molecules in biological samples, thereby enabling immediate applications in chromosome mapping, linkage analysis, tissue identification and/or typing, and a variety of forensic and diagnostic methods of the invention. Similarly, polypeptides identified from SEQ ID NO:Y have uses that include, but are not limited to, generating antibodies which bind specifically to the prostate cancer antigen polypeptides, or fragments thereof, and/or to the prostate cancer antigen polypeptides encoded by the cDNA clones identified in Table 1.

Nevertheless. DNA sequences generated by sequencing reactions can contain sequencing errors. The errors exist as misidentified nucleotides, or as insertions or deletions of nucleotides in the generated DNA sequence. The erroneously inserted or deleted nucleotides cause frame shifts in the reading frames of the predicted amino acid sequence. In these cases, the predicted amino acid sequence diverges from the actual amino acid sequence, even though the generated DNA sequence may be greater than 99.9% identical to the actual DNA sequence (for example, one base insertion or deletion in an open reading frame of over 1000 bases).

Accordingly, for those applications requiring precision in the nucleotide sequence or the amino acid sequence, the present invention provides not only the generated nucleotide sequence identified as SEQ ID NO:X, the predicted translated amino acid sequence identified as SEQ ID NO:Y, but also a sample of plasmid DNA containing the related cDNA clone (deposited with the ATCC, as set forth in Table 1). The nucleotide sequence of each deposited clone can readily be determined by sequencing the deposited clone in accordance with known methods. Further, techniques known in the art can be used to verify the nucleotide sequences of SEQ ID NO:X.

The predicted amino acid sequence can then be verified from such deposits. Moreover, the amino acid sequence of the protein encoded by a particular clone can also be directly determined by peptide sequencing or by expressing the protein in a suitable host cell containing the deposited human cDNA. collecting the protein, and determining its sequence.

The present invention also relates to vectors or plasmids which include such DNA sequences, as well as the use of the DNA sequences. The material deposited with the ATCC on:

Table 2

ATCC Deposits	Deposit Date	ATCC Designation Number
LP01, LP02, LP03, LP04, LP05, LP06, LP07, LP08, LP09, LP10, LP11,	May-20-97	209059, 209060, 209061, 209062, 209063, 209064, 209065, 209066, 209067, 209068, 209069
LP12	Jan-12-98	209579
LP13	Jan-12-98	209578
LP14	Jul-16-98	203067
LP15	Jul-16-98	203068
LP16	Feb-1-99	203609
LP17	Feb-1-99	203610
LP20	Nov-17-98	203485
LP21	Jun-18-99	PTA-252
LP22	Jun-18-99	PTA-253
LP23	Dec-22-99	PTA-1081

each is a mixture of cDNA clones derived from a variety of human tissue and cloned in either a plasmid vector or a phage vector, as shown in Table 5. These deposits are referred to as "the deposits" herein. The tissues from which the clones were derived are listed in Table 5, and the vector in which the cDNA is contained is also indicated in Table 5. The deposited material includes the cDNA clones which were partially sequenced and are related to the SEQ ID NO:X described in Table 1 (column 9). Thus, a clone which is isolatable from the ATCC Deposits by use of a sequence listed as SEQ ID NO:X may include the entire coding region of a human gene or in other cases such clone may include a substantial portion of the coding region of a human gene. Although the sequence listing lists only a portion of the DNA sequence in a clone included in the ATCC Deposits, it is well within the ability of one

ATCC Deposits by use of a sequence (or portion thereof) listed in Table 1 by procedures hereinafter further described. and others apparent to those skilled in the art.

Also provided in Table 5 is the name of the vector which contains the cDNA clone. Each vector is routinely used in the art. The following additional information is provided for convenience.

Vectors Lambda Zap (U.S. Patent Nos. 5,128,256 and 5,286,636), Uni-Zap XR (U.S. Patent Nos. 5,128, 256 and 5,286,636), Zap Express (U.S. Patent Nos. 5,128,256 and 5,286,636), pBluescript (pBS) (Short, J. M. et al., *Nucleic Acids Res. 16*:7583-7600 (1988); Alting-Mees, M. A. and Short, J. M., *Nucleic Acids Res. 17*:9494 (1989)) and pBK (Alting-Mees, M. A. et al., *Strategies 5*:58-61 (1992)) are commercially available from Stratagene Cloning Systems, Inc., 11011 N. Torrey Pines Road. La Jolla, CA, 92037. pBS contains an ampicillin resistance gene and pBK contains a neomycin resistance gene. Phagemid pBS may be excised from the Lambda Zap and Uni-Zap XR vectors, and phagemid pBK may be excised from the Zap Express vector. Both phagemids may be transformed into *E. coli* strain XL-1 Blue, also available from Stratagene.

Vectors pSport1, pCMVSport 1.0, pCMVSport 2.0 and pCMVSport 3.0, were obtained from Life Technologies, Inc., P. O. Box 6009, Gaithersburg, MD 20897. All Sport vectors contain an ampicillin resistance gene and may be transformed into *E. coli* strain DH10B, also available from Life Technologies. See, for instance, Gruber, C. E., et al., *Focus 15*:59 (1993). Vector lafmid BA (Bento Soares, Columbia University, New York, NY) contains an ampicillin resistance gene and can be transformed into *E. coli* strain XL-1 Blue. Vector pCR®2.1, which is available from Invitrogen, 1600 Faraday Avenue, Carlsbad, CA 92008, contains an ampicillin resistance gene and may be transformed into *E. coli* strain DH10B, available from Life Technologies. See, for instance, Clark, J. M., *Nuc. Acids Res. 16*:9677-9686 (1988) and Mead, D. *et al., Bio/Technology 9:* (1991).

The present invention also relates to the genes corresponding to SEQ ID NO:X, SEQ ID NO:Y, and/or the cDNA contained in a deposited cDNA clone. The corresponding gene can be isolated in accordance with known methods using the sequence information disclosed herein. Such methods include, but are not limited to, preparing probes or primers from the disclosed sequence and identifying or amplifying the corresponding gene from appropriate sources of genomic material.

Also provided in the present invention are allelic variants, orthologs, and/or species homologs. Procedures known in the art can be used to obtain full-length genes, allelic variants, splice variants, full-length coding portions, orthologs, and/or species homologs of genes corresponding to SEQ ID NO:X, SEQ ID NO:Y, and/or the cDNA contained in the related cDNA clone in the deposit, using information from the sequences disclosed herein or the clones deposited with the ATCC. For example, allelic variants and/or species homologs may be isolated and identified by making suitable probes or primers from the sequences provided herein and screening a suitable nucleic acid source for allelic variants and/or the desired homologue.

The present invention provides a polynucleotide comprising, or alternatively consisting of, the nucleic acid sequence of SEQ ID NO:X, and/or the related cDNA clone (See, e.g., columns 1 and 9 of Table 1). The present invention also provides a polypeptide comprising, or alternatively, consisting of, the polypeptide sequence of SEQ ID NO:Y, a polypeptide encoded by SEQ ID NO:X, and/or a polypeptide encoded by the cDNA in the related cDNA clone contained in a deposited library. Polynucleotides encoding a polypeptide comprising, or alternatively consisting of, the polypeptide sequence of SEQ ID NO:Y, a polypeptide encoded by SEQ ID NO:X, and/or a polypeptide encoded by the the dDNA in the related cDNA clone contained in a deposited library, are also encompassed by the invention. The present invention further encompasses a polynucleotide comprising, or alternatively consisting of, the complement of the nucleic acid sequence of SEQ ID NO:X, and/or the complement of the coding strand of the related cDNA clone contained in a deposited library.

Many polynucleotide sequences, such as EST sequences, are publicly available and accessible through sequence databases and may have been publicly available prior to conception of the present invention. Preferably, such related polynucleotides are specifically excluded from the scope of the present invention. To list every related sequence would unduly burden the disclosure of this application. Accordingly, for each "Contig Id" listed in the first column of Table 3, preferably excluded are one or more polynucleotides comprising a nucleotide sequence described in the second column of Table 3 by the general formula of a-b, each of which are uniquely defined for the SEQ ID NO:X corresponding to that Contig Id in Table 1. Additionally, specific embodiments are directed to polynucleotide sequences excluding at least one, two, three, four, five, ten, or more of the specific polynucleotide sequences referenced by the Genbank Accession No. for each Contig Id which may be

included in column 3 of Table 3. In no way is this listing meant to encompass all of the sequences which may be excluded by the general formula. it is just a representative example.

Table 3.

Sequence/ Contig ID	General formula	Genbank Accession No.
574130	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 703 of SEQ ID NO:1. b is an integer of 15 to 717. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:1. and where b is greater than or equal to a + 14.	
637706	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1611 of SEQ ID NO:2. b is an integer of 15 to 1625. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:2. and where b is greater than or equal to a + 14.	
638162	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2421 of SEQ ID NO:3. b is an integer of 15 to 2435, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:3, and where b is greater than or equal to a + 14.	R78923. R79022. H78714. H78726. H79487. H79500. H86682. H99479. N22197. N28292. N48317. N49043. N79526. W16679, AA017524, AA017582, AA215755, AA463914
684310	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 972 of SEQ ID NO:4. b is an integer of 15 to 986, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:4, and where b is greater than or equal to a + 14.	R00703. R79938. R80028. N75501. N99910. W25289
731016	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 356 of SEQ ID NO:5. b is an integer of 15 to 370, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:5. and where b is greater than or equal to a + 14.	
827771	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 497 of SEQ ID NO:6. b is an integer of 15 to 511. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:6. and where b is greater than or equal to a + 14.	
828193	Preferably excluded from the present invention are one or more polynucleotides comprising a	

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 704 of SEQ ID NO:7, b is an integer of 15 to 718, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:7, and where b is greater than or equal to a + 14.	
828194	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 431 of SEQ ID NO:8, b is an integer of 15 to 445, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:8, and where b is greater than or equal to a + 14.	
828199	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 744 of SEQ ID NO:9, b is an integer of 15 to 758, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:9, and where b is greater than or equal to a + 14.	
828221	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3050 of SEQ ID NO:10, b is an integer of 15 to 3064, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:10, and where b is greater than or equal to a + 14.	T47410, T54389, T54694, T47411, T54281, T54610, T58617, T58667, T78082, T78249, T80561, R28515, R28663, R38862, R54617, R54880, H08112, H08113, H16261, H16460, H22343, H22344, H29551, H29643, H41933, H41980, R83220, R83221, R85675, R89016, R89017, R99602, R99707, H58947, H58994, H59578, H59579, H62419, H91312, H91409, N54589, N66610, N73945, N76670, W03705, W04654, W31578, W38370, W39449, W93512, W93513, AA024819, AA024925, AA033860, AA076628, AA159000, AA193455, AA257006, AA225275, AA483288, AA507139, AA522771, AA527181, AA534997, AA541666, AA614359, AA614596, AA622977, AA622978, AA569985, AA576092, AA659398, AA826776, AA836985, AA864814, AA904006, AA911931, AA916611, AA932076, AA991541, C06189
828235	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1482 of SEQ ID NO:11, b is an integer of 15 to 1496, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:11, and where b is greater than or equal to a + 14.	AA045157, AA252563, AA573229, AA935280
828236	Preferably excluded from the present invention are one or more polynucleotides comprising a	

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1413 of SEQ ID NO:12, b is an integer of 15 to 1427, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:12, and where b is greater than or equal to a + 14.	
828237	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3534 of SEQ ID NO:13, b is an integer of 15 to 3548, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:13, and where b is greater than or equal to a + 14.	
828239	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 452 of SEQ ID NO:14, b is an integer of 15 to 466, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:14, and where b is greater than or equal to a + 14.	
828242	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 850 of SEQ ID NO:15, b is an integer of 15 to 864, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:15, and where b is greater than or equal to a + 14.	
828247	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2791 of SEQ ID NO:16, b is an integer of 15 to 2805, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:16, and where b is greater than or equal to a + 14.	
828248	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 696 of SEQ ID NO:17, b is an integer of 15 to 710, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:17, and where b is greater than or equal to a + 14.	T66275, R11733, H10020, H10293, AA054067, AA127524, AA192628
828250	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 978 of SEQ ID NO:18, b is an integer of 15 to 992, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:18, and where b is greater than or equal to a + 14.	T52330, T52406, H58954, H59892, H80117, H95961, AA035013, AA233062, AA811863, AA812014, AA827886

828256	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1781 of SEQ ID NO:19, b is an integer of 15 to 1795, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:19, and where b is greater than or equal to a + 14.	R19470, R43810, R43810, R68471, R84396, H48527, H72808, H74042, H77919, N59326, W37177, W63751, AA054952, AA055414, AA075756, AA084216, AA167088, AA171933, AA283637, AA504517, AA526903, AA548976, AA720935, AA743227, AA876493, AA922502, AA935236, AA977747, AA985556, AA995834, AI085874, AI089849, N83890, AA643000
828267	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 695 of SEQ ID NO:20, b is an integer of 15 to 709, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:20, and where b is greater than or equal to a + 14.	R64277, R78171, R81344, R82497, R82551, H30248, N21678, N35076, N43816, N49970, N72024, N72025, W32428, W45005, W47341, W47466, AA023021, AA022495, AA160240, AA161105, AA160827, AA262229, AA460961, AA461270, AA503727, AA516264, AA587486, AA618498, AA577174, AA769656, AA806381, AA804907, AA814296, AA826741, AA872272, AA873216, AA877503, AA887257, AA888574, AA903406, AA946650, AI005204, F18545, AI096504, AI096416, C01329
828269	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 635 of SEQ ID NO:21, b is an integer of 15 to 649, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:21, and where b is greater than or equal to a + 14.	
828272	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1593 of SEQ ID NO:22, b is an integer of 15 to 1607, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:22, and where b is greater than or equal to a + 14.	R19809, H18934, H19375, H26539, AA055911, AA494436, AA587324, AA714132, C17882, C18668
828273	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 564 of SEQ ID NO:23, b is an integer of 15 to 578, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:23, and where b is greater than or equal to a + 14.	H19271
828290	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2742 of SEQ ID NO:24, b is an integer of 15 to 2756, where both a and b correspond to the	T59898, T59989, T94867, T94912, T65240, T65292, T66052, T77599, R09165, R09268, R10580, R10581, T80506, T80507, R16318, R27636, R30800, R35595, R38849, R39241, R41395, R59117, R76584, R76585,

	positions of nucleotide residues shown in SEQ ID NO:24, and where b is greater than or equal to a + 14.	H09652, H09692, H11510, H11870, R83218, R91788, R91789, R96324, R96325, H57286, H72668, N74017, W02255, AA148639, AA148693, AA236061, AA236908, AA252747, AA259022, AA262883, AA278784, AA282771, AA284927, AA417594, AA456869, AA457026, AA482034, AA483364, AA483699, AA742268, AA831255
828326	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2666 of SEQ ID NO:25, b is an integer of 15 to 2680, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:25, and where b is greater than or equal to a + 14.	T39632, T51535, T51684, T53316, T53317, T78655, R39299, R50091, R50092, R60242, R60477, H15498, H16190, H16348, H23875, H23876, H39694, H46597, H66845, H66889, H81508, H83033, N71968, N99700, W00835, W42577, W60798, W60929, AA040868, AA043137, AA100392, AA133460, AA133461, AA151301, AA190783, AA190331, AA232148, AA244332, AA244333, AA417836, AA468588, AA552068, AA622100, AA570065, AA568384, AA661530, AA689348, AA748424, AA767109, AA769292, AA809791, AA915876, AA931522, AA983494, AI081278, N85117, W22522
828397	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1845 of SEQ ID NO:26, b is an integer of 15 to 1859, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:26, and where b is greater than or equal to a + 14.	
828405	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 620 of SEQ ID NO:27, b is an integer of 15 to 634, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:27, and where b is greater than or equal to a + 14.	N27583
828461	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1618 of SEQ ID NO:28, b is an integer of 15 to 1632, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:28, and where b is greater than or equal to a + 14.	T89996, H96643, AA076642, AA079413, AA120823, AA120824, AA133102, AA128879, AA158349, AA158350, AA838312, C00042, AA642274
828482	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to	R12256, T79977, T81576, T83389, T97268, T97379, R16708, R39343, R69161, R69275, H15410, H15466, H29577, H29661, H50315, N34544,

	2525 of SEQ ID NO:29. b is an integer of 15 to 2539. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:29. and where b is greater than or equal to a + 14.	N47100. N62861. N67285. W24823. AA232725. AA236518. AA657840, AA736793. W26725
828488	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 480 of SEQ ID NO:30. b is an integer of 15 to 494. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:30. and where b is greater than or equal to a + 14.	
828491	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1249 of SEQ ID NO:31. b is an integer of 15 to 1263. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:31, and where b is greater than or equal to a + 14.	
828492	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 323 of SEQ ID NO:32, b is an integer of 15 to 337, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:32, and where b is greater than or equal to a + 14.	
828494	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1728 of SEQ ID NO:33, b is an integer of 15 to 1742, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:33, and where b is greater than or equal to a + 14.	T77590. R19349, H06686, N42827, N42891, N73270, W38326, AA180136, AA194183, AA235257, AA424380. AA902702, AA939089, AA977206, AA988001, AA996359
828496	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1152 of SEQ ID NO:34, b is an integer of 15 to 1166, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:34, and where b is greater than or equal to a + 14.	H16641, H81084, AA972362
828498	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1035 of SEQ ID NO:35. b is an integer of 15 to 1049, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:35. and where b is greater than or equal to a + 14.	T39930. T98680, R89124, R89756, R91725, R91820, R92013, R92158, R94233, R94329, H59495, H61480, H62771. H62831, H67085, H67621, H71835. H71836. H79855, H79856, N31924. N42760. N55543, N72715, N76929, N79841. W46350, W46166. H97319, AA730300. AA746151. AA887571. AA918492.

		AA989417. AI001025. D79228. W38455. C15769
828504	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 475 of SEQ ID NO:36. b is an integer of 15 to 489. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:36. and where b is greater than or equal to a + 14.	
828507	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 584 of SEQ ID NO:37. b is an integer of 15 to 598. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:37. and where b is greater than or equal to a + 14.	
828512	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 748 of SEQ ID NO:38. b is an integer of 15 to 762, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:38, and where b is greater than or equal to a + 14.	N27463
828516	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1944 of SEQ ID NO:39. b is an integer of 15 to 1958, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:39, and where b is greater than or equal to a + 14.	T56794, T56795. T84141. R02653, R20890. R24025. R33319, R33320, R34774, R67912, R69738. R77753, R77838, R81629. H15449. H15508, H27402, H58932. H58979. H99151, N20262, N24400, N25962, N29166, N34977. N35438. N50797. N55154, W02966. W92783. W92882, AA007585. AA036747, AA036997, AA074474. AA102125. AA100655, AA112751, AA113219, AA113805, AA188790, AA541250, AA541763, AA558310, AA559035, AA581570, AA587474, AA569332, AA687827, AA715063. AA918342, AA936443, AA937851, AA947124, AA954522, AA989224, AI017059, AI057158, AI088905. AI094996, AI096728, U46434. C01531
828519	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 463 of SEQ ID NO:40. b is an integer of 15 to 477, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:40. and where b is greater than or equal to a + 14.	W79671
828521	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to	

	846 of SEQ ID NO:41. b is an integer of 15 to 860. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:41. and where b is greater than or equal to a + 14.	
828522	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1117 of SEQ ID NO:42, b is an integer of 15 to 1131. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:42. and where b is greater than or equal to a + 14.	T54309. T63973. T64041. T89636, T90270. R62731. R63686. H98873. N25098. N36012. N38881. N44246. N67168. AA047726. AA081019, AA120775. AA120774, AA128274. AA128571. AA551864, AA767989, AA902693
828525	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1320 of SEQ ID NO:43. b is an integer of 15 to 1334. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:43. and where b is greater than or equal to a + 14.	T48657. T48687. T48861. T49081, T49118. T53559. T58581, R23090. R26432. R26979. R27855. R32999, R34608. R64482. R64537. R66662. R67745. R69150. R70688. R77130. R81861. R82246. R82815. H03531. N39770. N41593, N42044. N57142, N94149. AA029208. AA149385. AA234086. N26326, N30247, N30819. N32903. N39539. D78905, D79060. N63792. AA029209
828529	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2337 of SEQ ID NO:44, b is an integer of 15 to 2351, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:44, and where b is greater than or equal to a + 14.	
828530	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1573 of SEQ ID NO:45. b is an integer of 15 to 1587, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:45, and where b is greater than or equal to a + 14.	T74290, T79269. R24408. R24409, R32342. R33507. R34284, R70908, H13795, H13794, N42196. AA013089, AA228469. AA505953, AA508121. AA602662, AA631903, AA865676. AA888323, AI032201, AA013090
828536	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 365 of SEQ ID NO:46, b is an integer of 15 to 379, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:46, and where b is greater than or equal to a + 14.	
828537	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1906 of SEQ ID NO:47, b is an integer of 15 to 1920. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID	

	NO:47. and where b is greater than or equal to a + 14.	
828539	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 305 of SEQ ID NO:48. b is an integer of 15 to 319. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:48. and where b is greater than or equal to a + 14.	
828540	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 264 of SEQ ID NO:49. b is an integer of 15 to 278. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:49, and where b is greater than or equal to a + 14.	
828542	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 638 of SEQ ID NO:50. b is an integer of 15 to 652. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:50, and where b is greater than or equal to a + 14.	
828543	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 929 of SEQ ID NO:51, b is an integer of 15 to 943, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:51, and where b is greater than or equal to a + 14.	
828544	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 818 of SEQ ID NO:52, b is an integer of 15 to 832, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:52, and where b is greater than or equal to a + 14.	
828546	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1540 of SEQ ID NO:53, b is an integer of 15 to 1554. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:53, and where b is greater than or equal to a + 14.	H25827, H45313. W77774, AA587295, AA595924, AA603051, C00427
828550	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 267 of SEQ ID NO:54, b is an integer of 15 to 281. where both a and b correspond to the positions of	

	nucleotide residues shown in SEQ ID NO:54. and where b is greater than or equal to a + 14.	
828551	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 793 of SEQ ID NO:55. b is an integer of 15 to 807. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:55. and where b is greater than or equal to a + 14.	AA224996. AA225045. AA229587. AA524970. AA528287. AA569633. AA577923
828553	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 642 of SEQ ID NO:56. b is an integer of 15 to 656. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:56. and where b is greater than or equal to a + 14.	
828557	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 780 of SEQ ID NO:57. b is an integer of 15 to 794. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:57. and where b is greater than or equal to a + 14.	
828560	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1141 of SEQ ID NO:58, b is an integer of 15 to 1155, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:58, and where b is greater than or equal to a + 14.	R77295. R77355, N50880, AA228477. AA229199, AA229332, AA229430, AA229342, AA508222. AA508881, AA508713, AA522664, AA525054, AA531563, AA564505, AA627496, AA569813, AA908306
828561	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 478 of SEQ ID NO:59, b is an integer of 15 to 492, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:59, and where b is greater than or equal to a + 14.	
828565	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1603 of SEQ ID NO:60. b is an integer of 15 to 1617, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:60, and where b is greater than or equal to a + 14.	
828566	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1639 of SEQ ID NO:61. b is an integer of 15 to	T74741. R89314. H66527. H66526, H67472. H67473, H68173, H68172, H96621, H96622. N27775, N28518, N33857. N66931. AA149826, AA151993. AA152072. AA152078.

	1653, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:61, and where b is greater than or equal to a + 14.	AA188743
828567	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 426 of SEQ ID NO:62, b is an integer of 15 to 440, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:62, and where b is greater than or equal to a + 14.	
828568	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1048 of SEQ ID NO:63, b is an integer of 15 to 1062, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:63, and where b is greater than or equal to a + 14.	R01283, R62995, R63052, R97762, R97763, AA044146, AA044262, AA150771, AA429074, AA282254, AA282728, AA468569, AA586526, AA622172, AA631182, AA631273, AA809910, AA811682
828569	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 408 of SEQ ID NO:64, b is an integer of 15 to 422, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:64, and where b is greater than or equal to a + 14.	
828570	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 695 of SEQ ID NO:65, b is an integer of 15 to 709, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:65, and where b is greater than or equal to a + 14.	H77440
828571	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1288 of SEQ ID NO:66, b is an integer of 15 to 1302, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:66, and where b is greater than or equal to a + 14.	N27429, N34713, N51144, AA033703, AA033704, AA046488, AA046700, AA180131, AA514866, AA515411, AA527426, AA554163, AA745008, AA805885, AA862045, AA953025, AI075070
828574	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1032 of SEQ ID NO:67, b is an integer of 15 to 1046, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:67, and where b is greater than or equal to a + 14.	T92929, T93045, T92007, T92093, T98007, R28667, N79460, AA614258, AA741201, AA847513, AI083735
828575	Preferably excluded from the present invention are one or more polynucleotides comprising a	AA837738

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 487 of SEQ ID NO:68, b is an integer of 15 to 501, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:68, and where b is greater than or equal to a + 14.	
828577	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 567 of SEQ ID NO:69, b is an integer of 15 to 581, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:69, and where b is greater than or equal to a + 14.	AA169882, AA169883
828578	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1062 of SEQ ID NO:70, b is an integer of 15 to 1076, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:70, and where b is greater than or equal to a + 14.	T39452, T46945, T47319, T53621, T53622, T61271, T61323, R21194, R22811, R24705, R25199, R50467, R50468, R53758, R53759, R63087, R63131, R63969, R64075, R70570, R77117, R77118, R80611, R80612, H00653, H00742, H02619, H02725, N32242, N57336, N69947, N80785, N98328, N98569, W15554, AA029021, AA029143, AA037587, AA131825, AA131992, AA229266, AA507524, AA533307, AA533431, AA534110, AA534166, AA534281, AA535170, AA586608, AA593596, AA838623, AA885780, AA936945, AA642546
828580	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 362 of SEQ ID NO:71, b is an integer of 15 to 376, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:71, and where b is greater than or equal to a + 14.	
828581	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 360 of SEQ ID NO:72, b is an integer of 15 to 374, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:72, and where b is greater than or equal to a + 14.	AA507628
828583	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 405 of SEQ ID NO:73, b is an integer of 15 to 419, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:73, and where b is greater than or equal to a + 14.	
828585	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	AA234220

	formula of a-b. where a is any integer between 1 to 272 of SEQ ID NO:74. b is an integer of 15 to 286. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:74. and where b is greater than or equal to a + 14.	
828587	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 619 of SEQ ID NO:75. b is an integer of 15 to 633. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:75. and where b is greater than or equal to a + 14.	
828590	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 242 of SEQ ID NO:76. b is an integer of 15 to 256. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:76. and where b is greater than or equal to a + 14.	
828592	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 680 of SEQ ID NO:77, b is an integer of 15 to 694, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:77, and where b is greater than or equal to a + 14.	R52221. R54548. R97331. H57211. H55375. H55650
828593	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2548 of SEQ ID NO:78, b is an integer of 15 to 2562, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:78. and where b is greater than or equal to a + 14.	T57629. T58982. R19824. R45052, R45052, R55638. R59495. H18527, H19193, H28411, H39750. H62246. H62335, H91342, N62586. N63264, N80359, W81015, W94481, W94746. AA011589. AA029848, AA028978, AA043902. AA114931. AA114930, AA191597. AA232906, AA233035, AA258137, AA287367, AA287505, AA506450, AA525766, AA526128. AA548114, AA592904, AA808705, AA837733, AA876630. AA908724. N90333. AA007166
828594	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1596 of SEQ ID NO:79, b is an integer of 15 to 1610. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:79, and where b is greater than or equal to a + 14.	R06875, R06876. H89673, AA036961. AA150107, AA150515, AA983641
828596	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1034 of SEQ ID NO:80, b is an integer of 15 to 1048. where both a and b correspond to the	R09863, T84746. T98848, W01274, W48629. AA082189. AA426550. C04056

	positions of nucleotide residues shown in SEQ ID NO:80. and where b is greater than or equal to a + 14.	
828597	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1122 of SEQ ID NO:81. b is an integer of 15 to 1136. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:81. and where b is greater than or equal to a + 14.	R41797. R41797. H61049. N58312. N79783. W07281. W23730. W23738. W35330. W35337. AA235295. AA935231. AA995710. AI017376. AI088874. AI096890. W27549
828598	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 283 of SEQ ID NO:82. b is an integer of 15 to 297. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:82. and where b is greater than or equal to a + 14.	
828601	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2136 of SEQ ID NO:83, b is an integer of 15 to 2150. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:83, and where b is greater than or equal to a + 14.	
828605	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 587 of SEQ ID NO:84, b is an integer of 15 to 601, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:84, and where b is greater than or equal to a + 14.	
828608	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 520 of SEQ ID NO:85, b is an integer of 15 to 534, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:85, and where b is greater than or equal to a + 14.	AA244003, AA244034, AA506324
828609	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1023 of SEQ ID NO:86, b is an integer of 15 to 1037, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:86, and where b is greater than or equal to a + 14.	N48056, N52932, N53254, N64840, N75691, AI050871
828610	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	AA177029, AA177023, AA176984, AA177153, AA216404. AA224959, AA225025. AA225109. AA225143,

	formula of a-b, where a is any integer between 1 to 583 of SEQ ID NO:87, b is an integer of 15 to 597, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:87, and where b is greater than or equal to a + 14.	AA225206, AA225152, AA225228, AA225308, AA225322, AA225213, AA225409, AA225879, AA225880, AA225963, AA225974, AA226101, AA226227, AA226240, AA226384, AA226459, AA226556, AA226623, AA226632, AA226680, AA229222, AA229223, AA229482, AA229756, AA229964, AA244017, AA244091, AA244178, AA244052, AA244362, AA244452, AA397457, AA420631, AA420632, AA420633, AA420826, AA469131, AA469154, AA469201, AA469209, AA469226, AA469293, AA469373, AA470501, AA470548, AA492204, AA492255, AA492295, AA492311, AA492312, AA492327, AA492329, AA492334, AA492382, AA492389, AA492411, AA492438, AA492445, AA492451, AA494242, AA494243, AA494246, AA493268, AA493332, AA493445, AA502071, AA502154, AA502180, AA502191, AA502200, AA502978, AA502981, AA503115, AA503349, AA503429, AA503609, AA503666, AA503677, AA503682, AA503909, AA503926, AA504051, AA504066, AA506197, AA506319, AA506330, AA506475, AA506731, AA506804, AA506914, AA507128, AA507215, AA507217, AA507281, AA507287, AA507305, AA507373, AA507510, AA507545, AA507615, AA507633, AA507659, AA507664, AA507669, AA507679, AA507685, AA507759, AA507769, AA507778, AA507785, AA507789, AA507968, AA507983, AA507996, AA507995, AA508013, AA508078, AA508096, AA508112, AA508128, AA508144, AA508348, AA508360, AA508636, AA513240, AA514804, AA514915, AA516492, AA516500, AA522599, AA524675, AA524914, AA524998, AA525091, AA526491, AA526493, AA527728, AA527825, AA528273, AA530882, AA530906, AA530942, AA530954, AA531208, AA531341, AA531361, AA531381, AA531498, AA532578, AA532712, AA532960, AA533031, AA533053, AA533162, AA533961, AA534135, AA535497, AA535744, AA541576, AA541642, AA548220, AA548400, AA551463, AA551698, AA551727, AA551737, AA552827, AA552829, AA557784, AA557804, AA558634,

		AA564543, AA564966, AA565164, AA588853, AA588270, AA587824, AA588630, AA593049, AA593065, AA594830, AA594923, AA595627, AA603351, AA603362, AA603437, AA603827, AA603877, AA603879, AA630927, AA635332, AA635394, AA635542, AA635549, AA635909, AA636004, AA639312, AA639995, AA640184, AA640298, AA640342, AA569556, AA570614, AA572857, AA574208, AA574209, AA574212, AA574273, AA580026, AA578701, AA578799, AA578900, AA579004, AA579008, AA579351, AA568108, AA568415, AA654920, AA654956, AA657393, AA657432, AA657479, AA657506, AA657531, AA657541, AA657686, AA657800, AA657938, AA658414, AA658873, AA659224, AA659592, AA659778, AA661727, AA662090, AA662125, AA662301, AA687536, AA687632, AA715325, AA807843, AA809523, AA809593, AA640904, AA640929, AA642080, AA642520
828617	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 460 of SEQ ID NO:88, b is an integer of 15 to 474, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:88, and where b is greater than or equal to a + 14.	
828620	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1523 of SEQ ID NO:89, b is an integer of 15 to 1537, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:89, and where b is greater than or equal to a + 14.	AA228288, AA492280, AA507777, AA508355, AA527737, AA527805, AA559165, AA559352, AA564484, AA602957, AA659719, AA642055
828621	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 290 of SEQ ID NO:90, b is an integer of 15 to 304, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:90, and where b is greater than or equal to a + 14.	
828622	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 355 of SEQ ID NO:91, b is an integer of 15 to 369, where both a and b correspond to the positions of	AA570443

	nucleotide residues shown in SEQ ID NO:91, and where b is greater than or equal to a + 14.	
828623	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 301 of SEQ ID NO:92, b is an integer of 15 to 315, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:92, and where b is greater than or equal to a + 14.	
828625	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 687 of SEQ ID NO:93, b is an integer of 15 to 701, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:93, and where b is greater than or equal to a + 14.	
828632	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 445 of SEQ ID NO:94, b is an integer of 15 to 459, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:94, and where b is greater than or equal to a + 14.	
828635	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2575 of SEQ ID NO:95, b is an integer of 15 to 2589, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:95, and where b is greater than or equal to a + 14.	R13230, R19016, R35012, R40312, R44087, R46776, R49399, R44087, R40312, R49399, H22883, H24275, H71951, N73720, W03891, W95360, W95359, AA055316, AA055317, AA135153, AA135291, AA195210, AA195427, AA236624, AA237000, AA548249, AA553712, AA595319, AA770603, AA947028, D78699
828637	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 443 of SEQ ID NO:96, b is an integer of 15 to 457, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:96, and where b is greater than or equal to a + 14.	
828639	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 502 of SEQ ID NO:97, b is an integer of 15 to 516, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:97, and where b is greater than or equal to a + 14.	
828645	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 300 of SEQ ID NO:98, b is an integer of 15 to 314,	

	where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:98. and where b is greater than or equal to a + 14.	
828648	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 665 of SEQ ID NO:99. b is an integer of 15 to 679. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:99. and where b is greater than or equal to a + 14.	
828649	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 585 of SEQ ID NO:100. b is an integer of 15 to 599. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:100. and where b is greater than or equal to a + 14.	
828651	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1175 of SEQ ID NO:101. b is an integer of 15 to 1189. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:101. and where b is greater than or equal to a + 14.	
828652	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 237 of SEQ ID NO:102, b is an integer of 15 to 251, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:102, and where b is greater than or equal to a + 14.	
828655	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 444 of SEQ ID NO:103, b is an integer of 15 to 458, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:103, and where b is greater than or equal to a + 14.	
828657	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 425 of SEQ ID NO:104. b is an integer of 15 to 439. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:104. and where b is greater than or equal to a + 14.	
828660	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 219 of SEQ ID NO:105. b is an integer of 15 to	

	233. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:105. and where b is greater than or equal to a + 14.	
828663	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 690 of SEQ ID NO:106. b is an integer of 15 to 704. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:106. and where b is greater than or equal to a + 14.	
828666	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 431 of SEQ ID NO:107, b is an integer of 15 to 445, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:107. and where b is greater than or equal to a + 14.	
828668	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 578 of SEQ ID NO:108. b is an integer of 15 to 592, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:108. and where b is greater than or equal to a + 14.	
828669	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 367 of SEQ ID NO:109, b is an integer of 15 to 381, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:109, and where b is greater than or equal to a + 14.	
828670	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 337 of SEQ ID NO:110, b is an integer of 15 to 351, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:110, and where b is greater than or equal to a + 14.	W38772
828671	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1569 of SEQ ID NO:111. b is an integer of 15 to 1583. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:111, and where b is greater than or equal to a + 14.	
828672	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 417 of SEQ ID NO:112. b is an integer of 15 to	

	431. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:112. and where b is greater than or equal to a + 14.	
828675	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2828 of SEQ ID NO:113, b is an integer of 15 to 2842. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:113. and where b is greater than or equal to a + 14.	T56042. T56076. T39529. T39565. R20801. R20914. R99174. W76346. AA070283. AA100602. AA186719. AA192887. AA258594. AA258623. AA262429. AA458551. AA425795. AA426147. AA426000, AA428422. AA428672. AA429274. AA429569. AA429700. AA280808. AA280860. AA583152. AA604621, AA573460, AA737552, AA745643. AA809317. AA811436. AA831842. AA832058. AA837490. AA847879. AI089925, AA070162
828677	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 254 of SEQ ID NO:114, b is an integer of 15 to 268, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:114. and where b is greater than or equal to a + 14.	
828678	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 786 of SEQ ID NO:115, b is an integer of 15 to 800, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:115, and where b is greater than or equal to a + 14.	
828679	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 632 of SEQ ID NO:116. b is an integer of 15 to 646, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:116, and where b is greater than or equal to a + 14.	
828680	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1520 of SEQ ID NO:117, b is an integer of 15 to 1534. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:117, and where b is greater than or equal to a + 14.	N64514, N70990, W01522, AA025937. AA025996, AA210760, AA215724, AA761682, AA768989, AA911839
828681	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 325 of SEQ ID NO:118, b is an integer of 15 to 339, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:118, and where b is greater than or equal to a + 14.	

828682	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 651 of SEQ ID NO:119, b is an integer of 15 to 665, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:119, and where b is greater than or equal to a + 14.	
828683	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 608 of SEQ ID NO:120, b is an integer of 15 to 622, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:120, and where b is greater than or equal to a + 14.	
828686	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 875 of SEQ ID NO:121, b is an integer of 15 to 889, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:121, and where b is greater than or equal to a + 14.	
828687	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 118 of SEQ ID NO:122, b is an integer of 15 to 132, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:122, and where b is greater than or equal to a + 14.	
828688	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1886 of SEQ ID NO:123, b is an integer of 15 to 1900, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:123, and where b is greater than or equal to a + 14.	T92794, T92816, N50876, W20089, N90429, AA086404, AA112766, AA130846, AA195042, AA194974, AA235868, AA554284, AA639411, AA573456, AA804901, AA828540
828689	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1236 of SEQ ID NO:124, b is an integer of 15 to 1250, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:124, and where b is greater than or equal to a + 14.	
828692	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1175 of SEQ ID NO:125, b is an integer of 15 to 1189, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID	T72780, R07981, R09868, T96304, H51978

	NO:125. and where b is greater than or equal to a + 14.	
828693	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 414 of SEQ ID NO:126. b is an integer of 15 to 428. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:126, and where b is greater than or equal to a + 14.	
828694	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 631 of SEQ ID NO:127. b is an integer of 15 to 645, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:127. and where b is greater than or equal to a + 14.	R02262
828696	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 482 of SEQ ID NO:128. b is an integer of 15 to 496, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:128, and where b is greater than or equal to a + 14.	
828697	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 410 of SEQ ID NO:129, b is an integer of 15 to 424, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:129, and where b is greater than or equal to a + 14.	AA059063
828699	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1695 of SEQ ID NO:130. b is an integer of 15 to 1709, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:130, and where b is greater than or equal to a + 14.	R75912. H40206. H40207, H41559, R87478. H52696, H52717, N40190, AA503759. AA504325. AA553825, AA553899, H64647, AA582193, AA580220, AA687790, AA809845, AA917674, AA935183, AI004172, AI027576, C14410. C14461, C14497, C14511
828702	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 852 of SEQ ID NO:131, b is an integer of 15 to 866, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:131, and where b is greater than or equal to a + 14.	N79392
828703	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1579 of SEQ ID NO:132, b is an integer of 15 to 1593. where both a and b correspond to the	T69829, R59224. H11661, AA587352. AA807572. AA806747, AA865576, AA912231. AI002338

	positions of nucleotide residues shown in SEQ ID NO:132. and where b is greater than or equal to a + 14.	
828704	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 394 of SEQ ID NO:133. b is an integer of 15 to 408, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:133. and where b is greater than or equal to a + 14.	
828706	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2727 of SEQ ID NO:134. b is an integer of 15 to 2741. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:134. and where b is greater than or equal to a + 14.	AA099313. AA099927. AA101522. AA101521. AA102781. AA102782. AA126249. AA134732. AA459009. AA459230. AA524248. AA524247. AA622869. AA744977. AA933725. AI000417. U65740
828708	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 672 of SEQ ID NO:135. b is an integer of 15 to 686. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:135. and where b is greater than or equal to a + 14.	AA736960
828711	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 228 of SEQ ID NO:136. b is an integer of 15 to 242. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:136. and where b is greater than or equal to a + 14.	
828712	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 531 of SEQ ID NO:137. b is an integer of 15 to 545. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:137. and where b is greater than or equal to a + 14.	
828713	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 382 of SEQ ID NO:138. b is an integer of 15 to 396. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:138. and where b is greater than or equal to a + 14.	
828714	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2757 of SEQ ID NO:139. b is an integer of 15 to	

	2771. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:139. and where b is greater than or equal to a + 14.	
828715	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 408 of SEQ ID NO:140. b is an integer of 15 to 422. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:140. and where b is greater than or equal to a + 14.	
828718	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1616 of SEQ ID NO:141. b is an integer of 15 to 1630. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:141. and where b is greater than or equal to a + 14.	R52059. R52058. H85868. W92475. AA046292. AA463500, AA463546. AA576113. AA862446
828723	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 250 of SEQ ID NO:142, b is an integer of 15 to 264, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:142, and where b is greater than or equal to a + 14.	
828726	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 622 of SEQ ID NO:143, b is an integer of 15 to 636. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:143, and where b is greater than or equal to a + 14.	
828728	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 486 of SEQ ID NO:144, b is an integer of 15 to 500, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:144, and where b is greater than or equal to a + 14.	N39508, W05658, AA083301, AA159253, AA195825
828730	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1931 of SEQ ID NO:145, b is an integer of 15 to 1945. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:145, and where b is greater than or equal to a + 14.	
828732	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	

	formula of a-b, where a is any integer between 1 to 1100 of SEQ ID NO:146, b is an integer of 15 to 1114, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:146, and where b is greater than or equal to a + 14.	
828733	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 532 of SEQ ID NO:147, b is an integer of 15 to 546, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:147, and where b is greater than or equal to a + 14.	
828735	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1749 of SEQ ID NO:148, b is an integer of 15 to 1763, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:148, and where b is greater than or equal to a + 14.	
828736	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 357 of SEQ ID NO:149, b is an integer of 15 to 371, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:149, and where b is greater than or equal to a + 14.	
828739	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 418 of SEQ ID NO:150, b is an integer of 15 to 432, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:150, and where b is greater than or equal to a + 14.	R36043
828740	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 387 of SEQ ID NO:151, b is an integer of 15 to 401, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:151, and where b is greater than or equal to a + 14.	
828742	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 837 of SEQ ID NO:152, b is an integer of 15 to 851, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:152, and where b is greater than or equal to a + 14.	
828748	Preferably excluded from the present invention are one or more polynucleotides comprising a	AA225966, AA226113, AA229173, AA229167, AA229535, AA243985,

	nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1664 of SEQ ID NO:153. b is an integer of 15 to 1678. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:153. and where b is greater than or equal to a + 14.	AA244099. AA244206. AA259243. AA420690. AA467761. AA467944. AA468120. AA468151. AA468187. AA468326. AA468918. AA468995. AA469129. AA469199. AA470575. AA502955. AA503272. AA506649. AA507335. AA507799. AA514825. AA522473. AA522848. AA524651. AA524893. AA525058. AA531386. AA532387. AA532926. AA534072. AA534246. AA535303. AA535837. AA551447. AA551738. AA558900. AA588263. AA587715. AA593380. AA595047. AA595357. AA595465. AA595601. AA603572. AA604709. AA635888. AA640473. AA569666. AA569670. AA573539. AA573587. AA574390. AA578439. AA578628. AA579001. AA579026. AA579117. AA579310. AA565962. AA566046. AA654974. AA657781. AA657831. AA658156. AA658207. AA658243. AA658463. AA658877. AA659198. AA659306. AA687563. AA687852. AA742871. AA876666. AA887095. AA888488. AA934855. AA935419. AA937807. AA937854. AA978237
828749	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1144 of SEQ ID NO:154, b is an integer of 15 to 1158. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:154. and where b is greater than or equal to a + 14.	T65384. R46577. R52660. R46577. H11492. N73810. N99718. AA121044. AA126520, AA126579. AA126687
828752	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1955 of SEQ ID NO:155, b is an integer of 15 to 1969. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:155, and where b is greater than or equal to a + 14.	AA492170
828753	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 386 of SEQ ID NO:156. b is an integer of 15 to 400. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:156. and where b is greater than or equal to a + 14.	
828754	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to	N42714, N32500

	708 of SEQ ID NO:157. b is an integer of 15 to 722. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:157. and where b is greater than or equal to a + 14.	
828757	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1186 of SEQ ID NO:158. b is an integer of 15 to 1200. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:158. and where b is greater than or equal to a + 14.	T90246. T90691. R14702. R34647. R42424. R49176. R42424. R49176. H06287. H06339. H14778. N69116. C03936, C15913
828761	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 331 of SEQ ID NO:159. b is an integer of 15 to 345. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:159. and where b is greater than or equal to a + 14.	
828762	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 462 of SEQ ID NO:160. b is an integer of 15 to 476, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:160, and where b is greater than or equal to a + 14.	
828764	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 506 of SEQ ID NO:161. b is an integer of 15 to 520. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:161, and where b is greater than or equal to a + 14.	
828765	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 325 of SEQ ID NO:162. b is an integer of 15 to 339, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:162, and where b is greater than or equal to a + 14.	
828766	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 343 of SEQ ID NO:163, b is an integer of 15 to 357, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:163. and where b is greater than or equal to a + 14.	
828767	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to	

	1065 of SEQ ID NO:164. b is an integer of 15 to 1079. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:164. and where b is greater than or equal to a + 14.	
828768	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1311 of SEQ ID NO:165. b is an integer of 15 to 1325. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:165. and where b is greater than or equal to a + 14.	
828770	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 380 of SEQ ID NO:166. b is an integer of 15 to 394. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:166. and where b is greater than or equal to a + 14.	
828771	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 503 of SEQ ID NO:167, b is an integer of 15 to 517, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:167, and where b is greater than or equal to a + 14.	
828772	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 327 of SEQ ID NO:168. b is an integer of 15 to 341, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:168, and where b is greater than or equal to a + 14.	
828773	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 336 of SEQ ID NO:169, b is an integer of 15 to 350, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:169, and where b is greater than or equal to a + 14.	
828775	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 427 of SEQ ID NO:170, b is an integer of 15 to 441, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:170, and where b is greater than or equal to a + 14.	
828776	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	AA127485

	formula of a-b, where a is any integer between 1 to 389 of SEQ ID NO:171, b is an integer of 15 to 403, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:171, and where b is greater than or equal to a + 14.	
828777	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 970 of SEQ ID NO:172, b is an integer of 15 to 984, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:172, and where b is greater than or equal to a + 14.	T86451, R87531, R87627, R91402, R92659, H98729, N24299, W19089, W20421, AA454940, AA605076, AA639539, AA662751, AA714010, AA743934, AA746310, AA888099, AA953728, AA976688, AI027564
828778	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1180 of SEQ ID NO:173, b is an integer of 15 to 1194, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:173, and where b is greater than or equal to a + 14.	
828780	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 687 of SEQ ID NO:174, b is an integer of 15 to 701, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:174, and where b is greater than or equal to a + 14.	
828781	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1167 of SEQ ID NO:175, b is an integer of 15 to 1181, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:175, and where b is greater than or equal to a + 14.	R17769, R39304, R42342, R42342, R61526, H05114, H08622, N63035, AA039717, AA039716, AA039852, AA235700, AA255466, AA461108, AA918115, AA938595, W00511, C00278
828782	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 475 of SEQ ID NO:176, b is an integer of 15 to 489, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:176, and where b is greater than or equal to a + 14.	
828783	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 239 of SEQ ID NO:177, b is an integer of 15 to 253, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:177, and where b is greater than or equal to a + 14.	
828784	Preferably excluded from the present invention are one or more polynucleotides comprising a	

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 379 of SEQ ID NO:178, b is an integer of 15 to 393, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:178, and where b is greater than or equal to a + 14.	
828785	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 451 of SEQ ID NO:179, b is an integer of 15 to 465, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:179, and where b is greater than or equal to a + 14.	H28735, AA541256, AA935694
828786	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 518 of SEQ ID NO:180, b is an integer of 15 to 532, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:180, and where b is greater than or equal to a + 14.	T50920
828788	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 800 of SEQ ID NO:181, b is an integer of 15 to 814, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:181, and where b is greater than or equal to a + 14.	AA765439
828790	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 303 of SEQ ID NO:182, b is an integer of 15 to 317, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:182, and where b is greater than or equal to a + 14.	
828791	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 229 of SEQ ID NO:183, b is an integer of 15 to 243, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:183, and where b is greater than or equal to a + 14.	
828792	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1134 of SEQ ID NO:184, b is an integer of 15 to 1148, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:184, and where b is greater than or equal to a + 14.	
828794	Preferably excluded from the present invention are one or more polynucleotides comprising a	

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1957 of SEQ ID NO:185, b is an integer of 15 to 1971, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:185, and where b is greater than or equal to a + 14.	
828797	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 352 of SEQ ID NO:186, b is an integer of 15 to 366, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:186, and where b is greater than or equal to a + 14.	
828798	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 336 of SEQ ID NO:187, b is an integer of 15 to 350, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:187, and where b is greater than or equal to a + 14.	
828799	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 361 of SEQ ID NO:188, b is an integer of 15 to 375, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:188, and where b is greater than or equal to a + 14.	R92181
828801	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 351 of SEQ ID NO:189, b is an integer of 15 to 365, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:189, and where b is greater than or equal to a + 14.	
828802	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 803 of SEQ ID NO:190, b is an integer of 15 to 817, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:190, and where b is greater than or equal to a + 14.	
828803	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 576 of SEQ ID NO:191, b is an integer of 15 to 590, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:191, and where b is greater than or equal to a + 14.	
828804	Preferably excluded from the present invention are one or more polynucleotides comprising a	

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 294 of SEQ ID NO:192, b is an integer of 15 to 308, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:192, and where b is greater than or equal to a + 14.	
828805	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 329 of SEQ ID NO:193, b is an integer of 15 to 343, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:193, and where b is greater than or equal to a + 14.	
828807	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 676 of SEQ ID NO:194, b is an integer of 15 to 690, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:194, and where b is greater than or equal to a + 14.	AA507550, AA613671, AA991871, AI073898
828809	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 223 of SEQ ID NO:195, b is an integer of 15 to 237, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:195, and where b is greater than or equal to a + 14.	
828810	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 253 of SEQ ID NO:196, b is an integer of 15 to 267, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:196, and where b is greater than or equal to a + 14.	
828811	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 429 of SEQ ID NO:197, b is an integer of 15 to 443, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:197, and where b is greater than or equal to a + 14.	
828817	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 194 of SEQ ID NO:198, b is an integer of 15 to 208, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:198, and where b is greater than or equal to a + 14.	
828818	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	

	formula of a-b. where a is any integer between 1 to 244 of SEQ ID NO:199. b is an integer of 15 to 258. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:199. and where b is greater than or equal to a + 14.	
828819	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 879 of SEQ ID NO:200, b is an integer of 15 to 893. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:200, and where b is greater than or equal to a + 14.	R28397. R35050. R82429. AA523252. AA541515. AA888589. AA931260. AA969512. N90287
828820	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 489 of SEQ ID NO:201. b is an integer of 15 to 503. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:201. and where b is greater than or equal to a + 14.	
828821	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 424 of SEQ ID NO:202, b is an integer of 15 to 438. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:202, and where b is greater than or equal to a + 14.	
828823	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 862 of SEQ ID NO:203, b is an integer of 15 to 876, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:203, and where b is greater than or equal to a + 14.	
828824	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1490 of SEQ ID NO:204. b is an integer of 15 to 1504, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:204, and where b is greater than or equal to a + 14.	T63961. R37805. R41200, R41200. H06703, H14569, N35284, W84891, W84386. AA020009, AA115923, AA191098, AA720881, AA825322, AA007194
828825	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 511 of SEQ ID NO:205, b is an integer of 15 to 525, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:205. and where b is greater than or equal to a + 14.	T90840. R97506, R97507. H56561, H90159. AA548594
828826	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	R54121. H53524. H83780. N33845, AA150188. AA150364, AA193510, AA236206. AA236207. AA256878.

	formula of a-b. where a is any integer between 1 to 2480 of SEQ ID NO:206. b is an integer of 15 to 2494. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:206. and where b is greater than or equal to a + 14.	AA255472. AA292484. AA292485. AA514616. AA808712. AA812205.
828829	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 866 of SEQ ID NO:207. b is an integer of 15 to 880. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:207. and where b is greater than or equal to a + 14.	
828830	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 626 of SEQ ID NO:208. b is an integer of 15 to 640. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:208. and where b is greater than or equal to a + 14.	W47311
828833	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 289 of SEQ ID NO:209, b is an integer of 15 to 303, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:209, and where b is greater than or equal to a + 14.	
828835	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1154 of SEQ ID NO:210, b is an integer of 15 to 1168, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:210, and where b is greater than or equal to a + 14.	
828838	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3119 of SEQ ID NO:211, b is an integer of 15 to 3133, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:211, and where b is greater than or equal to a + 14.	
828840	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 666 of SEQ ID NO:212. b is an integer of 15 to 680, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:212, and where b is greater than or equal to a + 14.	T67663, N51807, N94795
828845	Preferably excluded from the present invention are	AA278542

	one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 549 of SEQ ID NO:213, b is an integer of 15 to 563, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:213, and where b is greater than or equal to a + 14.	
828846	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2622 of SEQ ID NO:214, b is an integer of 15 to 2636, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:214, and where b is greater than or equal to a + 14.	
828847	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1808 of SEQ ID NO:215, b is an integer of 15 to 1822, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:215, and where b is greater than or equal to a + 14.	
828849	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3113 of SEQ ID NO:216, b is an integer of 15 to 3127, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:216, and where b is greater than or equal to a + 14.	
828850	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1515 of SEQ ID NO:217, b is an integer of 15 to 1529, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:217, and where b is greater than or equal to a + 14.	T89442, T89529, R00855, R01510, R17037, R44677, R44677, W71999, W76568, AA028176, AA594435, AA630811, AA640365, AA570503, AA827402, AI001038
828852	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1086 of SEQ ID NO:218, b is an integer of 15 to 1100, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:218, and where b is greater than or equal to a + 14.	N25191, N51394, AA085653
828853	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1778 of SEQ ID NO:219, b is an integer of 15 to	T69893, R23246, R23322, R23610, R26164, R76851, R78355, R78356, W37071, AA281297, AA281298, AA287617, AA286726, AA830753, AA907191, AA937081

	1792. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:219. and where b is greater than or equal to a + 14.	
828857	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1296 of SEQ ID NO:220. b is an integer of 15 to 1310. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:220. and where b is greater than or equal to a + 14.	H87149. N29514. N32038. W49771. W69834. W69944. W69906. W70171. AA035645. AA262486, AA280793, AA280787. AA468735. AA470769, AA814845. AA877855, AA903806
828861	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1355 of SEQ ID NO:221. b is an integer of 15 to 1369. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:221. and where b is greater than or equal to a + 14.	
828866	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 778 of SEQ ID NO:222, b is an integer of 15 to 792, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:222, and where b is greater than or equal to a + 14.	R17863, H06471. AA157721
828872	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 907 of SEQ ID NO:223. b is an integer of 15 to 921, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:223, and where b is greater than or equal to a + 14.	R87888, R87900, R87908. N49168, AA931266
828874	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1965 of SEQ ID NO:224, b is an integer of 15 to 1979, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:224, and where b is greater than or equal to a + 14.	T87038, R70347, H39025, R91475, H57830, H59954, H62220, H62316, H65258, H65259, H95743, N54406, W25201, W32973, W69360, W69399, W84707, W90181, AA045489, AA058908, AA059484. AA126289, AA126390, AA127568, AA171412, AA171832, AA548030, AA593288, AA595330, AA622098. AA573531. AA574415. AA865443
828875	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 527 of SEQ ID NO:225. b is an integer of 15 to 541, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:225, and where b is greater than or equal to a + 14.	
828877	Preferably excluded from the present invention are	

	one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 263 of SEQ ID NO:226. b is an integer of 15 to 277. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:226. and where b is greater than or equal to a + 14.	
828878	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2055 of SEQ ID NO:227. b is an integer of 15 to 2069. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:227. and where b is greater than or equal to a + 14.	T66330. R26894, R27126. R69123. R69242. R82299. R82300, W07548. W40127. W61081. W63740. AA088736. AA088851. AA416637, AA425692. AA587736. AA574419. AA659481. AA746137, AA827964. AA873416. AA876962, AA886118, AA913307. W63541. AA091722
828879	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 457 of SEQ ID NO:228. b is an integer of 15 to 471. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:228. and where b is greater than or equal to a + 14.	
828881	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1626 of SEQ ID NO:229. b is an integer of 15 to 1640. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:229. and where b is greater than or equal to a + 14.	
828885	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1956 of SEQ ID NO:230. b is an integer of 15 to 1970, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:230, and where b is greater than or equal to a + 14.	T66265. R00322. R05577, R14288, R40578. N35835, W67698, W68707. AA226782, AA227401, AA917573, AI096970. C01407
828886	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 296 of SEQ ID NO:231, b is an integer of 15 to 310. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:231, and where b is greater than or equal to a + 14.	
828887	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2819 of SEQ ID NO:232. b is an integer of 15 to 2833, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID	

	NO:232. and where b is greater than or equal to a + 14.	
828889	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 678 of SEQ ID NO:233, b is an integer of 15 to 692, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:233, and where b is greater than or equal to a + 14.	AI084904, N87764
828891	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1339 of SEQ ID NO:234, b is an integer of 15 to 1353, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:234, and where b is greater than or equal to a + 14.	
828899	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 332 of SEQ ID NO:235, b is an integer of 15 to 346, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:235, and where b is greater than or equal to a + 14.	
828907	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2257 of SEQ ID NO:236, b is an integer of 15 to 2271, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:236, and where b is greater than or equal to a + 14.	
828911	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3036 of SEQ ID NO:237, b is an integer of 15 to 3050, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:237, and where b is greater than or equal to a + 14.	
828914	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2788 of SEQ ID NO:238, b is an integer of 15 to 2802, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:238, and where b is greater than or equal to a + 14.	
828917	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	T48789, T48790, T52689, T52690, T54143, T57627, T58981, T60334, T63023, T63169, T64611, T68165,

	formula of a-b, where a is any integer between 1 to 1523 of SEQ ID NO:239, b is an integer of 15 to 1537, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:239, and where b is greater than or equal to a + 14.	T73770, T92858, R09683, R05784, R05870, R23705, R24243, R25436, R26263, R26661, R31482, R33617, R52663, R54888, R55790, R63634, R64491, R65588, R66756, R74348, R74447, R77767, R77861, H24648, H24647, H25483, H25708, H25719, H30170, H39683, H42201, H50627, H61272, H74187, H73366, H84457, H96852, H97161, N21258, N24067, N25124, N25891, N32256, N35943, N39665, N59887, N74237, N75946, N77028, N91815, N94382, W01241, W04970, W16791, W31249, W37991, W42625, W42503, W42504, W45097, W46997, W47010, W47011, W47035, W58226, W60191, W74239, AA011342, AA011422, AA053421, AA053142, AA069730, AA069687, AA071401, AA079362, AA085841, AA088476, AA088867, AA099339, AA098900, AA099401, AA099509, AA099626, AA100481, AA111899, AA112344, AA128689, AA128504, AA130068, AA130069, AA133988, AA130205, AA134388, AA130699, AA131164, AA131119, AA135908, AA143614, AA148147, AA151655, AA151855, AA149710, AA150148, AA152217, AA150454, AA156656, AA156942, AA158064, AA158065, AA160927, AA167640, AA167760, AA173558, AA173723, AA188571, AA188806, AA188862, AA190996, AA191121, AA252461, AA286842, AA513431, AA523544, AA533369, AA534903, AA541751, AA548088, AA552311, AA563748, AA563790, AA564990, AA565005, AA588690, AA594295, AA600956, AA604061, AA604282, AA604810, AA614124, AA631612, AA632221, AA569331, AA573854, AA577627, AA579851, AA661566, AA689517, AA740358, AA740572, AA747358, AA768322, AA827032, AA831321, AA831490, AA862010, AA862071, AA872486, AA876655, AA878041, AA902900, AA907481, AA932203, AA976947, AA995848, AI005047, AI051152, AI053717, AI053913, AI053985, AI054236, F18795, D82560, W28635, W68223, C02865, C05961, C06214, C14019, AA641827, AA642221
828921	Preferably excluded from the present invention are	

	one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1320 of SEQ ID NO:240, b is an integer of 15 to 1334, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:240, and where b is greater than or equal to a + 14.	
828922	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2424 of SEQ ID NO:241, b is an integer of 15 to 2438, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:241, and where b is greater than or equal to a + 14.	R14071, R40196, R40196, W78082, AA002041, AA001835, AA167058, AA564814, AA604562, AA831678, AA902298, AA922990, N88270
828924	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 125 of SEQ ID NO:242, b is an integer of 15 to 139, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:242, and where b is greater than or equal to a + 14.	
828925	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 465 of SEQ ID NO:243, b is an integer of 15 to 479, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:243, and where b is greater than or equal to a + 14.	
828926	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 570 of SEQ ID NO:244, b is an integer of 15 to 584, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:244, and where b is greater than or equal to a + 14.	AA021328, AA165340
828928	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 318 of SEQ ID NO:245, b is an integer of 15 to 332, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:245, and where b is greater than or equal to a + 14.	
828930	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1603 of SEQ ID NO:246, b is an integer of 15 to 1617, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:246, and where b is greater than or equal to a +	R13197, R22953, R23059, R34735, H16860, H17441, H30722, H96486, H98091, N25031, N26040, W37582, W74506, W73933, W79218, W79053, AA017108, AA027970, AA027971, AA058997, AA223857, AA468648, AA506695, AA513402, AA627542, AA627543,

	14.	AA687974, AA748356, AA749265, AA766155, AA769265, AA810698, AA810803, AA811177, AA813864, AA815128, AA837374, AA907206, AA907432, AA911140, AA911319, AA989380, AI088862, N85247
828935	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1435 of SEQ ID NO:247, b is an integer of 15 to 1449, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:247, and where b is greater than or equal to a + 14.	
828937	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1470 of SEQ ID NO:248, b is an integer of 15 to 1484, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:248, and where b is greater than or equal to a + 14.	T78834, T78835, T99250, T99297, R12511, T26404, R37406, R41280, R41370, R41371, R52358, R52359, R41280, R41370, R41371, R81208, R81320, R82778, H44863, H54693, H54584, H71670, H72234, H79199, H80064, H80065, H90038, H90715, H96868, H96874, H98754, N20017, N21625, N23354, N28826, N28864, N31950, N33092, N35337, N35930, N36772, N44708, N59759, N63774, N64419, N70550, N73583, N75550, N78219, N78798, N92686, N93067, W06846, W07226, W32114, W32172, W35376, W38996, W39688, W45043, W55883, W55882, W58545, W58627, W68228, W78990, W80596, W87464, N91505, AA026436, AA062585, AA112289, AA127552, AA127553, AA171942, AA172148, AA224492, AA279390, AA505278, AA505337, AA527368, AA531405, AA532853, AA534544, AA535699, AA582848, AA587609, AA568827, AA635925, AA576357, AA576891, AA579716, AA565856, AA687556, AA736748, AA877644, AA885760, AA917890, AA918826, AA938647, AA953594, AA971036, AA973846, AA976240, AA976836, AA948139, AI086410, W01797, N86155, N86407, AA026382, AA092135, AA093922, AA094184
828940	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2408 of SEQ ID NO:249, b is an integer of 15 to 2422, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:249, and where b is greater than or equal to a +	T61139, H60808, H66215, H86154, H86598, N66951, AA045564, AA053520, AA054053, AA054010, AA055556, AA055592, AA055887, AA085899, AA088546, AA100472, AA102305, AA100774, AA115726, AA115790, AA130430, AA130456, AA134504, AA130756, AA132265,

	14.	AA134988. AA135921. AA143560. AA143592. AA146693. AA146644, AA146790, AA152341. AA149726. AA149780. AA152003. AA157705. AA157715. AA157718. AA157719, AA157730. AA180379. AA226737. AA227302. AA527374. C05254
828942	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 560 of SEQ ID NO:250. b is an integer of 15 to 574, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:250. and where b is greater than or equal to a + 14.	H51878
828943	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1030 of SEQ ID NO:251, b is an integer of 15 to 1044. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:251, and where b is greater than or equal to a + 14.	
828946	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1015 of SEQ ID NO:252, b is an integer of 15 to 1029, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:252, and where b is greater than or equal to a + 14.	H49140, H50139. N91808. W17361, W23877, W25195, W31242, AA116089, AA116090, AA150544, AA150853, AA417973. AA418133, AA279993. AA280052, AA583751, AA587199, AA618421. AA814427, AA830028. AA916097, AA961686, AA974254. AA987758, AI083878, AI085516, N94820, N95456
828947	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 461 of SEQ ID NO:253, b is an integer of 15 to 475, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:253, and where b is greater than or equal to a + 14.	
828956	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1710 of SEQ ID NO:254, b is an integer of 15 to 1724, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:254, and where b is greater than or equal to a + 14.	T80047, T80393, H22804, N33236, W55892, AA043830, AA062632, AA069280, AA078770, AA082403. AA101062, AA459984, AA460077, AA501353, AA535081, AA588749, AA577376, AA814781, AA836428. AA876439, AA916459. AA938494
828958	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 292 of SEQ ID NO:255, b is an integer of 15 to 306. where both a and b correspond to the positions	

	of nucleotide residues shown in SEQ ID NO:255, and where b is greater than or equal to a + 14.	
828965	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 876 of SEQ ID NO:256, b is an integer of 15 to 890, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:256, and where b is greater than or equal to a + 14.	T60299, R07493, R02543, R02660, N23126, N26234, N28744, N80029, N92370, W06992, W24565, W56160, AA058766, AA082121, AA102497, AA133193, AA157043, AA181057, AA459909, AA419349, AA428256, AA522732, AA531204, AA588687, AA622529, AA631698, AA687351, AA736613, AA736615, AA743076, AA805965, AA825789, AA873396, AA934548, AA984002
828969	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1145 of SEQ ID NO:257, b is an integer of 15 to 1159, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:257, and where b is greater than or equal to a + 14.	R34277, R35477, R40127, R40127, R56401, R63536, R63587, R68336, R68415, R68416, R68428, R68429, R72408, R72447, R75996, R76825, H00671, H00761, H00909, H00910, H06173, H06437, H67367, H67416, H95558, N21675, N22870, N27226, N30906, N34567, N56770, N62120, N72850, N91825, W03069, W31262, W70204, W75946, AA009777, AA009498, AA081398, AA081947, AA082173, AA082577, AA101142, AA102573, AA102587, AA159158, AA279295, AA279321, AA587132, AA576939, AA720862, AA748173, AA808533, AA878214, AA962702, AA987447, AA987635, AA989319, AA995406, AI031632, N84444, AI097592, C02910, C14651, AA081397, C15440
828971	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 741 of SEQ ID NO:258, b is an integer of 15 to 755, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:258, and where b is greater than or equal to a + 14.	
828973	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 700 of SEQ ID NO:259, b is an integer of 15 to 714, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:259, and where b is greater than or equal to a + 14.	
828980	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 511 of SEQ ID NO:260, b is an integer of 15 to 525, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:260, and where b is greater than or equal to a + 14.	AA171806, AA223318

828984	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2986 of SEQ ID NO:261, b is an integer of 15 to 3000, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:261, and where b is greater than or equal to a + 14.	T80804, T81207, R66564, R79533, H10212, H10266, N47700, N47701, N47714, N47715, W92453, W92454, AA047175, AA057046, AA084865, AA084994, AA085435, AA088196, AA088369, AA102606, AA102637, AA102681, AA129398, AA129437, AA133824, AA133835, AA134870, AA155636, AA155692, AA173150, AA173277, AA181676, AA172185, AA187844, AA188417, AA188720, AA203343, AA223606, AA223765, AA232539, AA253486, AA258817, AA258912, AA418911, AA426576, AA428207, AA282012, AA282185, AA506517, AA581113, AA640599, AA864428, AA872063, AA928645, AA947052, AA983384, W28603, AA640958
828985	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 952 of SEQ ID NO:262, b is an integer of 15 to 966, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:262, and where b is greater than or equal to a + 14.	
828988	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2724 of SEQ ID NO:263, b is an integer of 15 to 2738, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:263, and where b is greater than or equal to a + 14.	T73414, R12106, T66627, T66628, T78284, R16041, R16042, R36860, R37936, R61426, R63310, H40110, H40174, N25567, N30486, N34167, N44865, N52758, N57579, N68031, W04668, W31769, W32476, W32662, AA029481, AA029545, AA215402, AA278628, AA278627, AA282001, AA483843, AA576431, AA659932, AA749063, AA768638, AA768824, AA809759, AA830249, N83750, AI097104
828993	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1506 of SEQ ID NO:264, b is an integer of 15 to 1520, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:264, and where b is greater than or equal to a + 14.	
828995	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1554 of SEQ ID NO:265, b is an integer of 15 to 1568, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:265, and where b is greater than or equal to a + 14.	

829000	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 531 of SEQ ID NO:266, b is an integer of 15 to 545, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:266, and where b is greater than or equal to a + 14.	T84984, H62305, N94075
829005	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 748 of SEQ ID NO:267, b is an integer of 15 to 762, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:267, and where b is greater than or equal to a + 14.	T81847, R31803, R63658, H80178, AA086064, AA730231, AA805602, N84214, AA091994
829009	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1419 of SEQ ID NO:268, b is an integer of 15 to 1433, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:268, and where b is greater than or equal to a + 14.	
829010	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2264 of SEQ ID NO:269, b is an integer of 15 to 2278, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:269, and where b is greater than or equal to a + 14.	
829012	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2519 of SEQ ID NO:270, b is an integer of 15 to 2533, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:270, and where b is greater than or equal to a + 14.	T46984, T46985, T60315, T60340, T91262, T82866, T85699, R18936, R22449, R22501, R44051, R44051, R62350, R62351, R62967, R63021, R67538, R67539, H00265, H00266, H05754, H05861, H17661, H17778, H37895, R84704, R85663, R85705, R92774, H71754, H86241, H86596, N77995, N94481, W23930, W33005, W42716, W42804, W42856, W42911, W48687, W48688, W51894, W60144, AA013165, AA013166, AA016027, AA016116, AA019160, AA019173, AA019737, AA019781, AA019874, AA019940, AA020855, AA021014, AA039946, AA039812, AA044966, AA059316, AA059332, AA062810, AA069688, AA074166, AA074690, AA074819, AA079227, AA086267, AA085941, AA101899, AA111855, AA112207, AA112317, AA113083, AA113110, AA112379, AA128454,

		AA129184. AA134373. AA134374. AA147440. AA147441. AA147468, AA147469. AA152007. AA182029. AA188388. AA193685. AA514744. AA525480. AA553895. AA559119. AA580724, AA595036. AA600916. AA601895. AA602350. AA631450. AA633022. AA640333. AA580604. AA715813. AA806865. AA808711. AA811858, AA833843, AA862552, AA873179. AA878958. AA887089. AA918330, AA922879. AA937320. AA977779. AA987809. AA991856, AA999930. AI081179. W28427, N86448. AA640960. AA641152
829013	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1604 of SEQ ID NO:271, b is an integer of 15 to 1618. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:271, and where b is greater than or equal to a + 14.	R12986, R32825, R32839, R32927, R32942, R40183. R52946. R53730. R40183. R66041. H98989. N52010, N54624, N66635, AA046243. AA149949. AA253362. AA253485. AA258773. AA257971. AA262281, AA422167. AA262911, AA513150, AA687117, AA687257. AA747442, AA748820, AA749108, AA767245. AA806305, AA811958. AA903407, AA937560, AA938330. AA976840, AA094074
829019	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 456 of SEQ ID NO:272, b is an integer of 15 to 470, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:272, and where b is greater than or equal to a + 14.	
829020	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 969 of SEQ ID NO:273, b is an integer of 15 to 983, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:273, and where b is greater than or equal to a + 14.	AA136693, AA136791. AA233217, AA419607
829021	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1992 of SEQ ID NO:274, b is an integer of 15 to 2006. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:274, and where b is greater than or equal to a + 14.	T94357, T94712, R12024, R12980, R37092, R40178. R40178. H06066, H13404, N70651. W06945. N90742, AA071520, AA082342, AA086292. AA111847. AA508760, AA513083, AA513134, AA975983, AA987297, N86943
829026	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1362 of SEQ ID NO:275. b is an integer of 15 to	R46780. R56425. H14131. H14048. H19990, H44884. W73060, W76648, AA258220. AA732283. AA732519, AA748619. AA768036. AA830813

	1376. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:275. and where b is greater than or equal to a + 14.	
829030	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2580 of SEQ ID NO:276. b is an integer of 15 to 2594. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:276. and where b is greater than or equal to a + 14.	
829035	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 665 of SEQ ID NO:277. b is an integer of 15 to 679. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:277. and where b is greater than or equal to a + 14.	
829041	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1464 of SEQ ID NO:278, b is an integer of 15 to 1478. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:278, and where b is greater than or equal to a + 14.	T64828. R13411, R40922, H17358. AA829407, AA991316
829045	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2307 of SEQ ID NO:279. b is an integer of 15 to 2321, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:279, and where b is greater than or equal to a + 14.	R94934. R95018. R96941. R96998. N62469, N79188, AA056180. AA079122. AA079223. AA190398. AA190542. AA279989, AA280050. AA563719. AA563967. AA621823. AA639374, AA743441. AA809943. AA903777, AA991450. AA091152
829048	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1679 of SEQ ID NO:280, b is an integer of 15 to 1693, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:280, and where b is greater than or equal to a + 14.	
829051	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 244 of SEQ ID NO:281. b is an integer of 15 to 258, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:281, and where b is greater than or equal to a + 14.	
829052	Preferably excluded from the present invention are	T54099. T54192. R42585. R42585.

	one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1750 of SEQ ID NO:282. b is an integer of 15 to 1764. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:282. and where b is greater than or equal to a + 14.	H30486. R83722. N24879. N34365. N36398. W80812. W80905. AA040726. AA040725. AA069816. AA099148. AA099246. AA130358. AA131274. AA143111. AA150578. AA553644. H89452. AA570403. AA985591. AI076032. AA092873
829057	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 785 of SEQ ID NO:283. b is an integer of 15 to 799. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:283. and where b is greater than or equal to a + 14.	R17092
829058	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1475 of SEQ ID NO:284. b is an integer of 15 to 1489. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:284. and where b is greater than or equal to a + 14.	
829059	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 688 of SEQ ID NO:285, b is an integer of 15 to 702. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:285, and where b is greater than or equal to a + 14.	T99023. R54176. H73053. H72832. H73054. H80706, AA988806
829061	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1161 of SEQ ID NO:286. b is an integer of 15 to 1175, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:286, and where b is greater than or equal to a + 14.	
829062	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2859 of SEQ ID NO:287, b is an integer of 15 to 2873. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:287. and where b is greater than or equal to a + 14.	
829063	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2090 of SEQ ID NO:288. b is an integer of 15 to 2104. where both a and b correspond to the	T56853. R13426. R40938. R40938. R56447. H64343. W94129. W94024. W95653, W95654, AA001812. AA158586, AA158585, AA179917. AA463947, AA464082, AA421875. AA430503. AA430622.

	positions of nucleotide residues shown in SEQ ID NO:288. and where b is greater than or equal to a + 14.	AA228990. AA506167. AA528459. AA551350. AA564494. AA601544. AA604335. AA622270. AA747745. AA760947. AA827325. AA888125. AA910238
829064	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1237 of SEQ ID NO:289. b is an integer of 15 to 1251. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:289. and where b is greater than or equal to a + 14.	
829066	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1577 of SEQ ID NO:290. b is an integer of 15 to 1591. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:290. and where b is greater than or equal to a + 14.	
829068	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2372 of SEQ ID NO:291. b is an integer of 15 to 2386, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:291. and where b is greater than or equal to a + 14.	
829069	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 969 of SEQ ID NO:292. b is an integer of 15 to 983, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:292, and where b is greater than or equal to a + 14.	AA056484, AA056650, AA742863
829074	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2641 of SEQ ID NO:293, b is an integer of 15 to 2655, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:293. and where b is greater than or equal to a + 14.	R21643, R21965, R23012, R31285. R31896, R32700, R32701, R34083, R62210. R64591. R68873, R73888, R73975, R74184. R74270, R76839. R77200, R77720, R78052, H03147, H03956. H15807. H16106, H39711. H39732. H42156. R98951, N41769, W87673. AA007438. AA007439. AA013075, AA099593. AA156625, AA195656, AA195769, AA236849, AA237048, AA226078, AA526030. AA570236, AA570252. AA766062. AA767497. AA769581. AA827847. AA831416. AA911414. AA938690
829077	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	R11694. AA031610. AA056352. AA099809. AA190527

	formula of a-b, where a is any integer between 1 to 1724 of SEQ ID NO:294, b is an integer of 15 to 1738, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:294, and where b is greater than or equal to a + 14.	
829078	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1006 of SEQ ID NO:295, b is an integer of 15 to 1020, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:295, and where b is greater than or equal to a + 14.	
829079	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 670 of SEQ ID NO:296, b is an integer of 15 to 684, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:296, and where b is greater than or equal to a + 14.	AA613454
829085	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1824 of SEQ ID NO:297, b is an integer of 15 to 1838, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:297, and where b is greater than or equal to a + 14.	
829093	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1621 of SEQ ID NO:298, b is an integer of 15 to 1635, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:298, and where b is greater than or equal to a + 14.	T86751, N67573, AA084170, AA482701, AA513177, AA715379
829099	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 854 of SEQ ID NO:299, b is an integer of 15 to 868, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:299, and where b is greater than or equal to a + 14.	AA235899, AA524874, AA588559, AA568363, C18296
829101	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 533 of SEQ ID NO:300, b is an integer of 15 to 547, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:300, and where b is greater than or equal to a + 14.	N28457

829102	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 851 of SEQ ID NO:301, b is an integer of 15 to 865, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:301, and where b is greater than or equal to a + 14.	N24654, N35441, N72250, W00539, W44692, AA101155, AA491668, AI054009, AI054199, W38644
829103	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 801 of SEQ ID NO:302, b is an integer of 15 to 815, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:302, and where b is greater than or equal to a + 14.	R34801, N36324, D81161, D81435, C15688, C15742
829104	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1905 of SEQ ID NO:303, b is an integer of 15 to 1919, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:303, and where b is greater than or equal to a + 14.	R08917, R09023, T95465, R07005, R19551, R37796, R43901, R43901, R65802, R65897, R77267, R77316, R82856, R82857, H15156, H15216, R93133, H77582, H77583, N45210, N50021, N55569, N58316, N59861, N59869, N76954, N77681, N93112, W38788, W52631, AA011659, AA011707, AA043405, AA133302, AA133248, AA134238, AA134239, AA150954, AA151044, AA459974, AA460066, AA503364, AA522740, AA522866, AA523791, AA602932, AA602716, AA876807, AA877039, AA879223, AA923007, AA935208, AI082642, AI094830
829109	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 143 of SEQ ID NO:304, b is an integer of 15 to 157, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:304, and where b is greater than or equal to a + 14.	
829111	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 329 of SEQ ID NO:305, b is an integer of 15 to 343, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:305, and where b is greater than or equal to a + 14.	
829115	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 682 of SEQ ID NO:306, b is an integer of 15 to 696, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:306, and where b is greater than or equal to a + 14.	AA064674, AA078775
829116	Preferably excluded from the present invention are	

	one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 382 of SEQ ID NO:307, b is an integer of 15 to 396, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:307, and where b is greater than or equal to a + 14.	
829119	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 535 of SEQ ID NO:308, b is an integer of 15 to 549, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:308, and where b is greater than or equal to a + 14.	T51849, T51895, R31503, H89196, W94076, AA233517, AA557320, AA582238, AA604556, AA659141
829120	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1764 of SEQ ID NO:309, b is an integer of 15 to 1778, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:309, and where b is greater than or equal to a + 14.	
829121	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 757 of SEQ ID NO:310, b is an integer of 15 to 771, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:310, and where b is greater than or equal to a + 14.	T79424, T86294, T98674, R00295, R41707, R42706, R45491, R46655, R41707, R42706, R45491, R46655, R56768, R71860, R71861, H17970, N55536, N80100, W46264, W46265, W46263, W72406, W73710, W76436, AA133997, AA470389, AA514398, AA524707, AA536170, F15823, AA731228, AA766110, AA825368, AA828215, AA833768, AA837103, AA918015, AA988068, AA999844, W46262, C04804, AA062584, AA082539
829123	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1405 of SEQ ID NO:311, b is an integer of 15 to 1419, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:311, and where b is greater than or equal to a + 14.	T53735, T53833, T73419, T79418, T79419, AA035245, AA530898, AA588281, AA631068, C01039
829126	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 512 of SEQ ID NO:312, b is an integer of 15 to 526, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:312, and where b is greater than or equal to a + 14.	
829135	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	

	formula of a-b. where a is any integer between 1 to 2421 of SEQ ID NO:313. b is an integer of 15 to 2435. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:313. and where b is greater than or equal to a + 14.	
829136	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2529 of SEQ ID NO:314. b is an integer of 15 to 2543. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:314. and where b is greater than or equal to a + 14.	N24451. N54675. AA135096. AA164383. AA180531. AA180520. AA179618. AA180509. C17250
829138	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 814 of SEQ ID NO:315. b is an integer of 15 to 828. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:315. and where b is greater than or equal to a + 14.	T57569. T86491. R00162. R00163. R91950. R92281. R93566. R93567. R98556. R98557. H82687. N23234. N23249. N27394. N40804. N52001. N54610. N62258. N69979. N79347. N98581. N98559. W24241. W30694. W39016. W49542. W49773. W93332. W95036. N90230. AA015762. AA022871. AA022872. AA151308. AA151309. AA203551. AA461104. AA424178. AA424202. AA467853. AA467908. AA513455. AA564159. AA576516. AA579461. AA740779. AA865373. AA938596. AA972781. AA641536. AA092083
829142	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1594 of SEQ ID NO:316. b is an integer of 15 to 1608. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:316. and where b is greater than or equal to a + 14.	
829148	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1043 of SEQ ID NO:317. b is an integer of 15 to 1057. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:317. and where b is greater than or equal to a + 14.	T70817, H97087. N28699, N59032, W31740, W63702
829149	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1322 of SEQ ID NO:318. b is an integer of 15 to 1336. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:318. and where b is greater than or equal to a +	T57875, AA062633. AA180493. AA255651, AA815168, AA827196. AA988896. AI032193

	14.	
829156	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 482 of SEQ ID NO:319, b is an integer of 15 to 496, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:319, and where b is greater than or equal to a + 14.	
829162	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1742 of SEQ ID NO:320, b is an integer of 15 to 1756, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:320, and where b is greater than or equal to a + 14.	W28213, C20991
829170	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 574 of SEQ ID NO:321, b is an integer of 15 to 588, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:321, and where b is greater than or equal to a + 14.	T54688
829177	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 724 of SEQ ID NO:322, b is an integer of 15 to 738, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:322, and where b is greater than or equal to a + 14.	
829179	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 862 of SEQ ID NO:323, b is an integer of 15 to 876, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:323, and where b is greater than or equal to a + 14.	
829184	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1308 of SEQ ID NO:324, b is an integer of 15 to 1322, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:324, and where b is greater than or equal to a + 14.	
829185	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 328 of SEQ ID NO:325, b is an integer of 15 to 342, where both a and b correspond to the positions	

	of nucleotide residues shown in SEQ ID NO:325. and where b is greater than or equal to a + 14.	
829188	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 3676 of SEQ ID NO:326. b is an integer of 15 to 3690. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:326. and where b is greater than or equal to a + 14.	T58653. T58703. T75221. T77245. T77461. R09770. R10874. R10923. T78618. R05603. R12362. R13912. R23445. R26046. R37744. R39442. R43682. R44004. R43682. R44004. H27016. H50941, H51605. H52497. N23353. N28825, N35021. N45029. N52865. N93751. N94155. W67224. W67334, W78117. W79824. W94552. W92625. AA036842. AA040393. AA040497. AA074284. AA075940. AA135258. AA157449, AA159938. AA188822. AA188883. AA223533. AA280881. AA280961. AA515694. AA573708. AA720966. AA730134. AA761564, AA805432. AA826208. AA831736. AA833940. AA834312. AA888244. AA911536. AA918643. AA922815. AA932119. AA933022
829190	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 705 of SEQ ID NO:327, b is an integer of 15 to 719. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:327, and where b is greater than or equal to a + 14.	
829193	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 975 of SEQ ID NO:328, b is an integer of 15 to 989, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:328, and where b is greater than or equal to a + 14.	AA043829
829196	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 420 of SEQ ID NO:329, b is an integer of 15 to 434, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:329, and where b is greater than or equal to a + 14.	AA156138
829197	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 682 of SEQ ID NO:330. b is an integer of 15 to 696, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:330. and where b is greater than or equal to a + 14.	R13055
829202	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	

	formula of a-b, where a is any integer between 1 to 527 of SEQ ID NO:331, b is an integer of 15 to 541, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:331, and where b is greater than or equal to a + 14.	
829203	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 291 of SEQ ID NO:332, b is an integer of 15 to 305, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:332, and where b is greater than or equal to a + 14.	
829209	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 431 of SEQ ID NO:333, b is an integer of 15 to 445, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:333, and where b is greater than or equal to a + 14.	H96926
829210	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 303 of SEQ ID NO:334, b is an integer of 15 to 317, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:334, and where b is greater than or equal to a + 14.	
829214	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1510 of SEQ ID NO:335, b is an integer of 15 to 1524, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:335, and where b is greater than or equal to a + 14.	T65464, T65607, T65616, R68318, R81279, H19079, H21595, W38816, AA173621, AA195611, AA461025, AA429991, AA281779, AA523034
829215	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 292 of SEQ ID NO:336, b is an integer of 15 to 306, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:336, and where b is greater than or equal to a + 14.	
829219	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 277 of SEQ ID NO:337, b is an integer of 15 to 291, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:337, and where b is greater than or equal to a + 14.	
829220	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	T91056, R08770, R10337, T85922, R08771, N30353, N33349, N34024, N36835, N43012, N46055, N46938,

	formula of a-b. where a is any integer between 1 to 1250 of SEQ ID NO:338. b is an integer of 15 to 1264. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:338. and where b is greater than or equal to a + 14.	N47028. N48163. N53309. N55453. N57768. N59733. N62846. N70614. N76825. N77753. W04936. W46253. W57556. W80670. W88648. AA081410. AA233146. AA251750. AA485043. AA554001. AA628055. AA632073. AA632104. AA576915. AA814024. AA829780. AA887202. AA902514. AA927412. AI056152. AI085313. AI084094
829222	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 745 of SEQ ID NO:339. b is an integer of 15 to 759. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:339, and where b is greater than or equal to a + 14.	T53949. T55484. T55410. N57462. N93015. W21365. W88723. AA025365. AA081355. AA081356. AA418410. AA418507. AA422027. AA593855. AA593915. AA639807. AA814928. AA833745. AA872346. AA887280. AA904054. AA090282
829223	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2625 of SEQ ID NO:340. b is an integer of 15 to 2639, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:340, and where b is greater than or equal to a + 14.	T39922. N73780. N74186. N99401. W49823. AA026960. AA028073. AA418303. AA418345. AA425606. AA425545. AA426176. AA279347, AA492172. AA587366. AA621961, AA621973. AA834751. AA641513
829225	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1810 of SEQ ID NO:341, b is an integer of 15 to 1824, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:341, and where b is greater than or equal to a + 14.	T64318. T65668. AA016241, AA173963. AA618544
829226	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 4517 of SEQ ID NO:342, b is an integer of 15 to 4531, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:342. and where b is greater than or equal to a + 14.	R17300, R31023. R61393. R61438, R61703, R61704. R72584. R72589. R74189. R74276, R78679, H20944, H22649, H39794, R84924. H79108, H79109, H81746, H81747. N32103, N38733, N45414. N47287, N47868, N48370, N48604. N50820. N51222, W19758, W38435. W44825. W74326, AA031730, AA045438, AA046531, AA047110. AA047266, AA148821. AA150421. AA169649, AA169829. AA169806. AA169813, AA171644, AA171651. AA227734, AA228119. AA255720, AA258153, AA424351. AA424866. AA426160, AA281120. AA281932. AA594385, AA594783. AA627918. AA570350. AA744689. AA748507. AA805709, AA806075. AA805170. AA865268. AA872935. AA876562. AA911965. AA916659. AA917349. AA918770.

		AA918850. AA946925. D81172. D81397. D78876. C01437. N86700, N88264. C05670. C18759
829227	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 570 of SEQ ID NO:343. b is an integer of 15 to 584. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:343. and where b is greater than or equal to a + 14.	T47087. T47086. R44450. R44450. H13259. H95459, AA035630. AA179511. AA418751. AA527136. AA961714. AA992449
829231	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 764 of SEQ ID NO:344. b is an integer of 15 to 778. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:344. and where b is greater than or equal to a + 14.	
829232	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 3726 of SEQ ID NO:345. b is an integer of 15 to 3740, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:345. and where b is greater than or equal to a + 14.	N26050. N40415. N41638. AA001329, AA001916. AA158802. AA158803. AA213393. AA213394, AA213538. AA424282. AA459213, AA482209. AA482297. AA580754, AA729270. AA737966. AA742269. AA804199. AA937087. N33467, N43860, C02233
829233	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 432 of SEQ ID NO:346. b is an integer of 15 to 446, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:346, and where b is greater than or equal to a + 14.	
829239	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 768 of SEQ ID NO:347. b is an integer of 15 to 782, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:347, and where b is greater than or equal to a + 14.	
829240	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 425 of SEQ ID NO:348. b is an integer of 15 to 439, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:348, and where b is greater than or equal to a + 14.	
829242	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2342 of SEQ ID NO:349. b is an integer of 15 to	T91514, T91542. T94168. T78752, R14281, R31952, R32000. R37970, R37971, R39326, R40572, R40572, R55803. R55886, R66639. R81490. R81731. H53614. H53652. H87392.

	2356. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:349. and where b is greater than or equal to a + 14.	H97030. N26679. N35814. N39832. N64783. N76195. N92867. N95188. W21546. W25593. W61031. W78096. W79455. AA022610. AA022611. AA034251. AA063637. AA102635. AA102677. AA171440. AA190925. AA191317. AA223281. AA223381. AA226876. AA227079. AA460842. AA461146. AA428884. AA429051. AA429588. AA430105. AA526857. AA534144. AA542854. AA542868. AA554978. AA582495. AA605088. AA614111. AA614129. AA635924. AA580535. AA732502. AA740954. AA812350. AA827279. AA857515. AA928973. AA985646. AA995666. AI015556. U47719. N85053. C02475. C14936. C20619
829246	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1205 of SEQ ID NO:350, b is an integer of 15 to 1219. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:350. and where b is greater than or equal to a + 14.	
829250	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 394 of SEQ ID NO:351. b is an integer of 15 to 408. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:351, and where b is greater than or equal to a + 14.	
829253	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1269 of SEQ ID NO:352, b is an integer of 15 to 1283, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:352, and where b is greater than or equal to a + 14.	
829256	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 3215 of SEQ ID NO:353. b is an integer of 15 to 3229. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:353, and where b is greater than or equal to a + 14.	R17284, R17354, R17854, R24590, R33671. R33788. R35944, R36246. R36247. R36926. R43105, R44395, R49460. R49460. R44395, R43105. H24440. H24469. H82721. H83591, N50755. N55574. N64383. N92180, N90817. AA019697, AA026244. AA026441. AA037458. AA037544, AA127492. AA127587. AA190907. AA243225. AA243269, AA279209, AA503849. AA507466. AA639522. AA731780. AA736864, AA766007. AA090592

829263	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 492 of SEQ ID NO:354, b is an integer of 15 to 506, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:354, and where b is greater than or equal to a + 14.	N41747
829266	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 728 of SEQ ID NO:355, b is an integer of 15 to 742, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:355, and where b is greater than or equal to a + 14.	
829271	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1681 of SEQ ID NO:356, b is an integer of 15 to 1695, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:356, and where b is greater than or equal to a + 14.	T39261, T49204, T72303, T71643, R07380, T66682, T82066, T83481, R01790, R16223, R20708, R81714, H06087, H09039, H46863, R96294, H50808, H84189, H84190, H84400, H91054, H91348, H96283, N32070, N39797, N45073, N45382, W04773, W21170, W52394, W51822, AA017710, AA017711, AA019476, AA021323, AA021324, AA044865, AA045153, AA054523, AA081533, AA083253, AA084388, AA083588, AA101641, AA101642, AA101720, AA135652, AA136639, AA136846, AA151892, AA179772, AA180489, AA187824, AA188556, AA224078, AA232050, AA232154, AA425968, AA531528, AA581305, AA742833, D83801, D83850, W22420
829273	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 914 of SEQ ID NO:357, b is an integer of 15 to 928, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:357, and where b is greater than or equal to a + 14.	
829274	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1360 of SEQ ID NO:358, b is an integer of 15 to 1374, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:358, and where b is greater than or equal to a + 14.	
829276	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to	

	4138 of SEQ ID NO:359. b is an integer of 15 to 4152. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:359. and where b is greater than or equal to a + 14.	
829279	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1142 of SEQ ID NO:360. b is an integer of 15 to 1156. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:360. and where b is greater than or equal to a + 14.	
829280	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 362 of SEQ ID NO:361. b is an integer of 15 to 376. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:361, and where b is greater than or equal to a + 14.	
829283	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 505 of SEQ ID NO:362. b is an integer of 15 to 519, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:362, and where b is greater than or equal to a + 14.	
829284	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1371 of SEQ ID NO:363. b is an integer of 15 to 1385. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:363, and where b is greater than or equal to a + 14.	R35022. N53092. W56437. AA425107. AA429328. AA639462
829285	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 963 of SEQ ID NO:364, b is an integer of 15 to 977, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:364, and where b is greater than or equal to a + 14.	T98355, N35799. N68373, AA233837. AA234338, AA541363, C05871, C06442
829287	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 950 of SEQ ID NO:365. b is an integer of 15 to 964. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:365, and where b is greater than or equal to a + 14.	T75573, T75574, T89291, T92020, T92115. R09394. R09395. T81925, T81926, T84370. H15008. H15009, H22443, H22477. H42624. H70914, H70998. H91740. H70914. N21387, N21568, N29475. N31342. N35714. N39243, N46687. N58940. N62219, N62544, N71355. N73001. N79212, N79311. N80035. N92595. N95523, N99823. W02965. W06998.

		W17066. W17239. W37312. W37553. W38873. W38985. W42735. W42825. W44743. W45210. W60642. W60643. W61216, W72457. W73365. W73442. W73919. W74445. W78073. W94432. W92526. W95225. N89652. N89752. AA034453. AA046851. AA046813. AA053964. AA055047. AA055127. AA074513. AA081359. AA084042. AA098833. AA112180. AA136464, AA165072. AA164675. AA190836. AA255622. AA256734. AA428625. AA484049. AA513283. AA535853. F16222. AA587936. AA614830. AA767121, AA814435. AA832516. AA829611. AA829918. AA872922. AA910970. AA987945. AA988657. AA948052. AI094757, D79222. D79845. W79251. C00060
829295	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1283 of SEQ ID NO:366. b is an integer of 15 to 1297, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:366, and where b is greater than or equal to a + 14.	N79069, N94383, AA046494, AA046766, AA101963. AA099652, AA135109. AA135264. AA148582, AA148581. AA150460. AA156662, AA534768, AA557811, AA687147, AA730106, AA810732, AA911850
829296	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 771 of SEQ ID NO:367, b is an integer of 15 to 785, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:367, and where b is greater than or equal to a + 14.	
829297	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 906 of SEQ ID NO:368, b is an integer of 15 to 920, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:368, and where b is greater than or equal to a + 14.	H63163, H69239, AA291944, AA827871, AA995955
829298	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 820 of SEQ ID NO:369, b is an integer of 15 to 834, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:369, and where b is greater than or equal to a + 14.	T85571. T85572, T98605. R06410, R06411. R72558. W25247, W58681, AA126722. AA137218, AA136191, AA531469. AA565025. AA948354, AA978354. AA988766, AI057145, N95214
829302	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	T65369, R16190. R51781. H70499, AA203397

	formula of a-b, where a is any integer between 1 to 933 of SEQ ID NO:370, b is an integer of 15 to 947, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:370, and where b is greater than or equal to a + 14.	
829304	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2326 of SEQ ID NO:371, b is an integer of 15 to 2340, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:371, and where b is greater than or equal to a + 14.	
829320	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1561 of SEQ ID NO:372, b is an integer of 15 to 1575, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:372, and where b is greater than or equal to a + 14.	T83172, T83188, T98062, H14392, AA196911, AA514594
829322	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1864 of SEQ ID NO:373, b is an integer of 15 to 1878, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:373, and where b is greater than or equal to a + 14.	
829355	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 832 of SEQ ID NO:374, b is an integer of 15 to 846, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:374, and where b is greater than or equal to a + 14.	
829364	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 643 of SEQ ID NO:375, b is an integer of 15 to 657, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:375, and where b is greater than or equal to a + 14.	R10800, H79360, AA130522
829919	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 681 of SEQ ID NO:376, b is an integer of 15 to 695, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:376, and where b is greater than or equal to a + 14.	
829941	Preferably excluded from the present invention are	

	one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3596 of SEQ ID NO:377, b is an integer of 15 to 3610, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:377, and where b is greater than or equal to a + 14.	
829945	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 209 of SEQ ID NO:378, b is an integer of 15 to 223, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:378, and where b is greater than or equal to a + 14.	
829946	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 795 of SEQ ID NO:379, b is an integer of 15 to 809, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:379, and where b is greater than or equal to a + 14.	AA288019, AA502347, AA904261
829947	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2536 of SEQ ID NO:380, b is an integer of 15 to 2550, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:380, and where b is greater than or equal to a + 14.	T66737, T66738, T74003, T77189, T80326, R13808, R14624, R15371, R16290, R19838, R21469, R24972, R37667, R38092, R39443, R39761, R40215, R40379, R42113, R45233, R42113, R42856, R40215, R40379, R45233, R45937, R56287, R59950, R59951, R60203, R60436, H09760, H09845, H10702, H10703, H19185, H29333, H29426, N94574, W30864, W45066, W45179, W47249, W47622, W47621, W73903, W74765, W95498, W95585, AA039360, AA039359, AA043667, AA057482, AA083653, AA088919, AA131592, AA135473, AA135544, AA147364, AA147416, AA161437, AA164913, AA165378, AA164333, AA181099, AA430483, AA281878, AA291947, AA493956, AA582300, AA740445, AA743497, AA875945, AA878761, AA923149, AA931525, AA931950, AA935699, AA947521, AA962775, AA977566, AA984017, AA988746, AI095060, D82399, W25818, W51914, C15840
829952	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1254 of SEQ ID NO:381, b is an integer of 15 to 1268, where both a and b correspond to the	R17678, R26888, R27120, R35870, R35871, R51276, R66882, R67967, H27381, H28345, H38579, R93605, R97908, R97907, H53653, H61431, H61432, H62657, H63776, H63826, H65287, H65810, H89508, H89654,

	positions of nucleotide residues shown in SEQ ID NO:381, and where b is greater than or equal to a + 14.	N74909, W23437, AA026270, AA026558, AA177150, AA515407, AA527495, AA535324, AA594129, AA568558, AA864390, AA999878, AI014459, AI017407, AI017824
829954	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 840 of SEQ ID NO:382, b is an integer of 15 to 854, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:382, and where b is greater than or equal to a + 14.	
829955	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1077 of SEQ ID NO:383, b is an integer of 15 to 1091, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:383, and where b is greater than or equal to a + 14.	T47229, T47230, R02311, R43154, R51528, R43154, H42209, R88215, N49583, N93033, W21271, W31966, AA029149, AA513795, AA548358, AA612791, AA633375, AA830042, AA917951, N83314, N86243, C02678
829957	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1015 of SEQ ID NO:384, b is an integer of 15 to 1029, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:384, and where b is greater than or equal to a + 14.	T39589, T40683, H47643, R92700, R99102, R99644, H53816, H58333, H58722, H61989, H61990, H63765, H63809, H73313, H73501, N38910, N46484, N66604, N69475, N75847, W01771, W07430, W74706, W74743, W87451, W87550, N90967, AA010671, AA011259, AA026367, AA026459, AA063538, AA133609, AA157688, AA157767, AA252640, AA262927, AA417991, AA418050, AA425054, AA429232, AA505081, AA602637, AA569939, AA688193, AA714567, AA715109, AA721733, AA761769, AA824602, AA829416, AA910995, AA932302, AA934664, AA960927, AA973923, AI002231, AI094664
829958	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 569 of SEQ ID NO:385, b is an integer of 15 to 583, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:385, and where b is greater than or equal to a + 14.	W31195, W38586, N90200, AA045674, AA045675, AA064826, AA064769, AA082177, AA129757, AA133252, AA187005, AA188378, AA226394, AA491262, AA523135, AA527421, AA527902, AA533279, AA554691, AA632078, AA721457, AA743821, AA760765, AA766192, AA769476, AA805805, AA815094, AA826696, AA873340, AA876652, AA902562, AA935370, AA091473
829960	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2396 of SEQ ID NO:386, b is an integer of 15 to 2410, where both a and b correspond to the	T87492, T89410, T89773, T80188, T83347, T83577, T85604, T86095, H44324, R86738, R86745, R87175, R87176, R93579, R97628, H59234, H67776, H69384, H89665, H90369, H91278, H93827, N59685, N73235,

	positions of nucleotide residues shown in SEQ ID NO:386. and where b is greater than or equal to a + 14.	N77230. N99493. W01516. W07398. W07499. AA011532. AA127663. AA127842. AA127871. AA131770. AA131783. AA203697. AA223149. AA657524. AA770678. AA828971. AA937743
829966	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 675 of SEQ ID NO:387. b is an integer of 15 to 689. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:387. and where b is greater than or equal to a + 14.	T94747. T91932. R10556. T95267. T95268. H90557. N59601. W02671, W03166, AA523419
829967	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 784 of SEQ ID NO:388. b is an integer of 15 to 798. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:388. and where b is greater than or equal to a + 14.	T66815. T66816. T90190. R07384. T81628. T81788, T82103. T83000. R23462. R25324. R26060. R31477. R31478, R66771. R80777. R80976. H13673. H13721. R98517. H92094, H94096. H94097. N30791. N31967, N32621, N41566. N47840. N57286. N75841, W07482. W16880. W46399, W46507. W72152. W77912, AA040326, AA040305. AA147001. AA147002. AA176399. AA178863. AA188782. AA188633, AA502400, AA503270. AA508898, AA515395, AA557399. AA610193, AA714481, AA740261. AA748847, AA760659, AA766512. AA824416. AA877577, AA910372, AA938717, AI018625, AI056489. N92492. AI084101. AA642564
829970	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1677 of SEQ ID NO:389, b is an integer of 15 to 1691, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:389, and where b is greater than or equal to a + 14.	W57592, AA253247
829981	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 440 of SEQ ID NO:390, b is an integer of 15 to 454, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:390, and where b is greater than or equal to a + 14.	N44941
829985	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 793 of SEQ ID NO:391. b is an integer of 15 to 807, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:391.	T58690. H10115. AA101544, AA171779, AA173847

	and where b is greater than or equal to a + 14.	
829986	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 913 of SEQ ID NO:392. b is an integer of 15 to 927, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:392. and where b is greater than or equal to a + 14.	R72689. H39575. AA516440. AA662417
829988	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1009 of SEQ ID NO:393. b is an integer of 15 to 1023. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:393. and where b is greater than or equal to a + 14.	
829990	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 808 of SEQ ID NO:394. b is an integer of 15 to 822. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:394, and where b is greater than or equal to a + 14.	
829991	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1688 of SEQ ID NO:395, b is an integer of 15 to 1702, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:395, and where b is greater than or equal to a + 14.	N22386. AA461107, AA493109, AA932044, AA976154, AA995814
829992	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 844 of SEQ ID NO:396, b is an integer of 15 to 858, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:396, and where b is greater than or equal to a + 14.	W44338. W44452. AA600841. AA577032. AA936480, AA973451
829993	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1096 of SEQ ID NO:397, b is an integer of 15 to 1110. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:397, and where b is greater than or equal to a + 14.	
829998	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 850 of SEQ ID NO:398. b is an integer of 15 to	R12950. R56786. H09888. H91803

	864, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:398, and where b is greater than or equal to a + 14.	
829999	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 257 of SEQ ID NO:399, b is an integer of 15 to 271, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:399, and where b is greater than or equal to a + 14.	
830000	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 911 of SEQ ID NO:400, b is an integer of 15 to 925, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:400, and where b is greater than or equal to a + 14.	
830001	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1071 of SEQ ID NO:401, b is an integer of 15 to 1085, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:401, and where b is greater than or equal to a + 14.	
830005	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 334 of SEQ ID NO:402, b is an integer of 15 to 348, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:402, and where b is greater than or equal to a + 14.	
830009	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1456 of SEQ ID NO:403, b is an integer of 15 to 1470, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:403, and where b is greater than or equal to a + 14.	
830010	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2473 of SEQ ID NO:404, b is an integer of 15 to 2487, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:404, and where b is greater than or equal to a + 14.	
830127	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	T80487, R61657

	formula of a-b, where a is any integer between 1 to 1242 of SEQ ID NO:405, b is an integer of 15 to 1256, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:405, and where b is greater than or equal to a + 14.	
830128	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 757 of SEQ ID NO:406, b is an integer of 15 to 771, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:406, and where b is greater than or equal to a + 14.	
830129	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2629 of SEQ ID NO:407, b is an integer of 15 to 2643, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:407, and where b is greater than or equal to a + 14.	T53792, T53907, T53943, T62085, T62142, R20454, R78770, R78927, R79027, R79077, H98608, N48338, N49063, W01400, W52282, W57571, AA035258, AA035470, AA101541, AA114162, AA121802, AA129334, AA129628, AA130575, AA130988, AA131026, AA156750, AA156922, AA157263, AA157360, AA223729, AA223816, AA489148, AA490861, AA516421, AA526784, AA533164, AA535426, AA552972, AA583471, AA605156, AA575994, AA747160, AA804291, AA887994, AA937881, AA948245, AA974518, AA974784, AI002302, AI051153, N84559, N86782, AA642578, AA093419
830137	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1632 of SEQ ID NO:408, b is an integer of 15 to 1646, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:408, and where b is greater than or equal to a + 14.	
830140	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 862 of SEQ ID NO:409, b is an integer of 15 to 876, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:409, and where b is greater than or equal to a + 14.	
830157	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1836 of SEQ ID NO:410, b is an integer of 15 to 1850, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:410, and where b is greater than or equal to a +	

	14.	
830195	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 647 of SEQ ID NO:411. b is an integer of 15 to 661. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:411, and where b is greater than or equal to a + 14.	
830196	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1249 of SEQ ID NO:412, b is an integer of 15 to 1263, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:412. and where b is greater than or equal to a + 14.	T47007, T47008. T59996. T63678. T72979. T73043. R20327. R34736. H18043. H69946. H98876. W79567. AA069850. AA070319. AA074422. AA076309, AA081601. AA101958. AA113902. AA126400. AA134002. AA134658. AA134640. AA135254. AA146731. AA155584. AA157966. AA159110. AA159386. AA159466, AA160637. AA179462. AA182917. AA182648. AA190534. AA220918. AA223557. AA227300. AA232517, AA233585, AA932527. N83710. N85080. W28216. W28475. W28650. AA090479
830409	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1323 of SEQ ID NO:413, b is an integer of 15 to 1337, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:413, and where b is greater than or equal to a + 14.	
830417	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 778 of SEQ ID NO:414, b is an integer of 15 to 792, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:414, and where b is greater than or equal to a + 14.	T70867, R12290, T78032. T80453, T80532, R12432, R12507. R18857, R23505. R51536, R52975. R53640. H12996, H22829. H63914. H64034, H71775, H85810, H97709. N42249, W39175, AA018531, AA018491, AA018481, AA052919, AA079678, AA083267, AA102444, AA127022, AA147778, AA226551, AA994837, N84172, W95500, C02827, C04397. AA090040
830531	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1328 of SEQ ID NO:415, b is an integer of 15 to 1342. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:415, and where b is greater than or equal to a + 14.	
830677	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to	

	1099 of SEQ ID NO:416. b is an integer of 15 to 1113. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:416. and where b is greater than or equal to a + 14.	
831355	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1160 of SEQ ID NO:417. b is an integer of 15 to 1174, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:417. and where b is greater than or equal to a + 14.	
831420	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 659 of SEQ ID NO:418. b is an integer of 15 to 673. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:418. and where b is greater than or equal to a + 14.	
831702	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2164 of SEQ ID NO:419. b is an integer of 15 to 2178, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:419. and where b is greater than or equal to a + 14.	
831717	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1870 of SEQ ID NO:420. b is an integer of 15 to 1884, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:420, and where b is greater than or equal to a + 14.	
832488	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 608 of SEQ ID NO:421, b is an integer of 15 to 622, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:421, and where b is greater than or equal to a + 14.	
833207	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1271 of SEQ ID NO:422. b is an integer of 15 to 1285, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:422. and where b is greater than or equal to a + 14.	

835940	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 514 of SEQ ID NO:423. b is an integer of 15 to 528. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:423. and where b is greater than or equal to a + 14.	
836953	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 3104 of SEQ ID NO:424. b is an integer of 15 to 3118. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:424. and where b is greater than or equal to a + 14.	
837105	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1396 of SEQ ID NO:425. b is an integer of 15 to 1410. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:425. and where b is greater than or equal to a + 14.	
837300	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1408 of SEQ ID NO:426, b is an integer of 15 to 1422. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:426, and where b is greater than or equal to a + 14.	R22778. H06717, H18453, H26987, H26988. N33207, N44745, W57874, W58145. AA040435, AA278615, AA507344, AA558666. AA578863. AA872443. AA877052, AA877120. AA879047, AA887537, AA910397. AA931214, AI025125, AA040434
837373	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 816 of SEQ ID NO:427, b is an integer of 15 to 830, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:427, and where b is greater than or equal to a + 14.	R21137. H67522. AA081145, AA082099, AA082371, AA130000, AA130415, AA130417, AA132638, AA136918, AA147401, AA157404, AA186519, AA186340, AA186565, AA190900, AA191038, AA190612, AA224065, AA469308, AA514706, AA640391, AA659609, AA814425, AA932379, AA961224, AA974800, AA977316. AI002396, N83374, N83520, N83658, N83770, N85953, N85954, N86486, N86566, N86680, N87938, N88164, N89316, C14148, C14189. AA095113. AA206109
837687	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1608 of SEQ ID NO:428, b is an integer of 15 to 1622, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:428. and where b is greater than or equal to a +	

	14.	
837991	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 534 of SEQ ID NO:429, b is an integer of 15 to 548, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:429, and where b is greater than or equal to a + 14.	
838442	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 555 of SEQ ID NO:430, b is an integer of 15 to 569, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:430, and where b is greater than or equal to a + 14.	
840541	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 535 of SEQ ID NO:431, b is an integer of 15 to 549, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:431, and where b is greater than or equal to a + 14.	AA205009, AA471299
840543	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1207 of SEQ ID NO:432, b is an integer of 15 to 1221, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:432, and where b is greater than or equal to a + 14.	
840550	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1101 of SEQ ID NO:433, b is an integer of 15 to 1115, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:433, and where b is greater than or equal to a + 14.	T53643, T53644, R67842, R67843, R79329, H12321, H40510, R83261, R88722, R90978, R97638, H51690, H52190, H78699, H89714, N58070, N69832, N98971, AA251228, AA251227, AA282101, AA513006, AA528240, AA558167, AA593383, AA574200, AA577197, AA765822, AA847143, AA863087, AA931049, AA694054
840563	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1590 of SEQ ID NO:434, b is an integer of 15 to 1604, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:434, and where b is greater than or equal to a + 14.	R38732, R71612, R71613, N24083, N31377, N47304, N48623, W87303, W90742, W90798, AA011634, AA011635, AA253397, AA253501, AA257091, AA257121, AA427877, AA503469, AA565303, AA587449, AA613721, AA740312, C01498, AA434535, AA443422, AA454584, AA677081, AI022365, AI052631, AA693545
840565	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	

	formula of a-b, where a is any integer between 1 to 287 of SEQ ID NO:435, b is an integer of 15 to 301, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:435, and where b is greater than or equal to a + 14.	
840569	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 304 of SEQ ID NO:436, b is an integer of 15 to 318, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:436, and where b is greater than or equal to a + 14.	
840570	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1868 of SEQ ID NO:437, b is an integer of 15 to 1882, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:437, and where b is greater than or equal to a + 14.	AI075277, AA675912, AA675911
840571	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2042 of SEQ ID NO:438, b is an integer of 15 to 2056, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:438, and where b is greater than or equal to a + 14.	T47828, T47852, T64841, T65430, T65510, T72584, R17181, R19667, R34515, R41731, R44453, R49058, R50770, R51812, R41731, R49058, R44453, H11004, H15433, H15488, H28705, H28834, AA515873, AA687085, AA863313, AA903803, AA452278, AA452447, AA781246, AA972396, AA993822, AI002821, T10761, D25941, Z41977, Z40833, Z44675, F01498, F03695, F07749, F11901, F12192, F09548, F09821
840573	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 707 of SEQ ID NO:439, b is an integer of 15 to 721, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:439, and where b is greater than or equal to a + 14.	AA149788
840574	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1027 of SEQ ID NO:440, b is an integer of 15 to 1041, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:440, and where b is greater than or equal to a + 14.	T65588, R40688, R42248, R53793, R53794, R42248, R20733, R40688, R66541, R68438, R68439, R77228, R77229, R77595, H18969, H20988, H21032, H49673, H50064, N72287, N80600, W07440, W40167, AA034401, AA035044, AA035506, AA035555, AA182662, AA182740, AA483608, AA588302, AA602357, AA604612, AA639138, D81410, D81461, D81692, AI097583, C15094, AA404494, AA705982, AI080676, AI095724, F09676
840575	Preferably excluded from the present invention are one or more polynucleotides comprising a	W68038, W93774

	nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1981 of SEQ ID NO:441. b is an integer of 15 to 1995. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:441. and where b is greater than or equal to a + 14.	
840579	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1709 of SEQ ID NO:442. b is an integer of 15 to 1723. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:442. and where b is greater than or equal to a + 14.	R25715. R72972. N42280. N99672. AA046377. AA112337. AA137170. AA156083. AA156289. AA234550. AA236661. AA251743. AA256954. AA256645. AA704119. AI073518, AA773818
840580	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1885 of SEQ ID NO:443. b is an integer of 15 to 1899. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:443. and where b is greater than or equal to a + 14.	
840581	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 416 of SEQ ID NO:444, b is an integer of 15 to 430, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:444, and where b is greater than or equal to a + 14.	
840605	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2139 of SEQ ID NO:445. b is an integer of 15 to 2153, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:445, and where b is greater than or equal to a + 14.	T58718, R60700, R60701, H30380, H30430. N42386, AA126493, AA126620. AA128024. AA128067. AA236455, AA234073, AA470382, AA503709. AA635761, AA573225, AA573330, AA659473, AA807615, AA824445, AA825364, AA888670, AA931858, AA935053, AA968889, AA971410, AA973830, AA974807, AA977019. AA991272, AA975535, C02768. AA094041, AA478779, AA478898, AA487854, AA777751, AA845416, AA969094, AI027197, AI027391, AI093994, AI094088, T24618. T25054. Z41574
840607	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 478 of SEQ ID NO:446. b is an integer of 15 to 492, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:446, and where b is greater than or equal to a + 14.	
840609	Preferably excluded from the present invention are	

	one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1525 of SEQ ID NO:447, b is an integer of 15 to 1539, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:447, and where b is greater than or equal to a + 14.	
840610	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3969 of SEQ ID NO:448, b is an integer of 15 to 3983, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:448, and where b is greater than or equal to a + 14.	
840611	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1163 of SEQ ID NO:449, b is an integer of 15 to 1177, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:449, and where b is greater than or equal to a + 14.	
840612	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2414 of SEQ ID NO:450, b is an integer of 15 to 2428, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:450, and where b is greater than or equal to a + 14.	
840615	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2471 of SEQ ID NO:451, b is an integer of 15 to 2485, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:451, and where b is greater than or equal to a + 14.	T65122, T65191, R32009, R32056, R69507, R70398, H06201, R94284, R94634, H51636, H92705, H99325, N24056, N26430, N35932, N39594, N46740, N70376, W88440, AA017294, AA115093, AA115094, AA171679, AA173604, AA173857, AA233061, AA243856, AA279997, AA419480, AA419595, AA536095, AA583207, AA588657, AA604241, AA639870, AA713580, AA714906, AA730848, AA741161, AA832122, AA879136, AA903032, AA938350, AA948280, AA976706, W05017, AA171795, AA401642, AA405839, AA411823, AA628174, AA725876, AA725882, AA833521, AA954549, AA992844, AI014611, AI018081, AI024440, AI025063, AI049677, AI085041, AI090013, AI091784, F11915, F09562, AA699825
840622	Preferably excluded from the present invention are	

	one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 949 of SEQ ID NO:452, b is an integer of 15 to 963, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:452, and where b is greater than or equal to a + 14.	
840623	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 590 of SEQ ID NO:453, b is an integer of 15 to 604, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:453, and where b is greater than or equal to a + 14.	AA248685
840624	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1903 of SEQ ID NO:454, b is an integer of 15 to 1917, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:454, and where b is greater than or equal to a + 14.	N38891, N54665, N45221, F13612, F13702
840631	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1524 of SEQ ID NO:455, b is an integer of 15 to 1538, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:455, and where b is greater than or equal to a + 14.	
840632	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2175 of SEQ ID NO:456, b is an integer of 15 to 2189, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:456, and where b is greater than or equal to a + 14.	H15848, H16160, H27966, H27967, H42798, H87969, N64073, N64076, N64078, AA045740, AA280032, AA280099, AA283727, AA290929, AA814009, AA975514, AI094746, AA449900, AA716758, AA724921, AA860380, AA909482
840633	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1385 of SEQ ID NO:457, b is an integer of 15 to 1399, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:457, and where b is greater than or equal to a + 14.	
840634	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 695 of SEQ ID NO:458, b is an integer of 15 to 709, where both a and b correspond to the positions	AA063114

	of nucleotide residues shown in SEQ ID NO:458. and where b is greater than or equal to a + 14.	
840635	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1269 of SEQ ID NO:459. b is an integer of 15 to 1283. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:459. and where b is greater than or equal to a + 14.	
840636	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 421 of SEQ ID NO:460. b is an integer of 15 to 435. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:460. and where b is greater than or equal to a + 14.	
840637	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 640 of SEQ ID NO:461. b is an integer of 15 to 654. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:461, and where b is greater than or equal to a + 14.	AA001547. AA012848. AA012933. AA017085. AA017194. AA018490. AA810954
840639	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2231 of SEQ ID NO:462, b is an integer of 15 to 2245. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:462. and where b is greater than or equal to a + 14.	
840640	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1266 of SEQ ID NO:463, b is an integer of 15 to 1280. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:463, and where b is greater than or equal to a + 14.	
840650	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2417 of SEQ ID NO:464, b is an integer of 15 to 2431. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:464, and where b is greater than or equal to a + 14.	
840652	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	

	formula of a-b, where a is any integer between 1 to 575 of SEQ ID NO:465, b is an integer of 15 to 589, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:465, and where b is greater than or equal to a + 14.	
840653	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1093 of SEQ ID NO:466, b is an integer of 15 to 1107, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:466, and where b is greater than or equal to a + 14.	
840655	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2183 of SEQ ID NO:467, b is an integer of 15 to 2197, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:467, and where b is greater than or equal to a + 14.	
840659	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3597 of SEQ ID NO:468, b is an integer of 15 to 3611, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:468, and where b is greater than or equal to a + 14.	
840660	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 506 of SEQ ID NO:469, b is an integer of 15 to 520, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:469, and where b is greater than or equal to a + 14.	AA253121, AA253250
840661	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 865 of SEQ ID NO:470, b is an integer of 15 to 879, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:470, and where b is greater than or equal to a + 14.	R40087, AA483309, AA720883, AA747744, AA811974, AA853049
840662	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2543 of SEQ ID NO:471, b is an integer of 15 to 2557, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:471, and where b is greater than or equal to a + 14.	R13355, R21688, R23614, R26167, R40871, R46580, R46580, R40871, R67867, R67868, H01101, H01102, H01867, H01868, H02834, H03726, H93708, H95440, H95441, N53845, N66438, N68125, N69039, N73342, AA045604, AA045603, AA101337, AA100423, AA101346, AA101345, AA156296, AA157481, AA158453,

		AA158452. AA181954. AA187577. AA428908. AA281008. AA281174. AA551925. AA557463. AA588077. AA742447. AA768547. AA814696. AA991197. AI017348. C05887. C06049. AA093441. AA496804. AA599560. AA665699. AA707837. AA775203. AA843259. AA844411. AA889762. AI091389
840663	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 453 of SEQ ID NO:472, b is an integer of 15 to 467, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:472, and where b is greater than or equal to a + 14.	
840670	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1826 of SEQ ID NO:473, b is an integer of 15 to 1840, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:473, and where b is greater than or equal to a + 14.	T71092, T67636, R08286, H13339, H16147, H25692, H38182, R84798, R98981, N79217, W19493, W25579, AA034100, AA056965, AA262921, AA720972, AA768301, AA825825, AA972578, AA094484, AA394311, AA487380, AA778203, AI004258, AI005389, Z39071, Z42947, F02333, F06078, AA682274
840671	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1244 of SEQ ID NO:474, b is an integer of 15 to 1258, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:474, and where b is greater than or equal to a + 14.	R46252, R46252, N49076, W04352, W86176, W86177, W92672, W92692, W93417, AA029831, AA085198, AA464962, AA633124, AA737628, AA737662, AA780382, AA811098, AA836105, AA857959, AA994284, AI076231, C01217, AA780068, AI004350
840672	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 4217 of SEQ ID NO:475, b is an integer of 15 to 4231, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:475, and where b is greater than or equal to a + 14.	
840673	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 677 of SEQ ID NO:476, b is an integer of 15 to 691, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:476, and where b is greater than or equal to a + 14.	
840674	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to	R51915, R54456, R54458, H18062, H18757, W03838, W77892, AA629317, F09686

	1404 of SEQ ID NO:477. b is an integer of 15 to 1418. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:477. and where b is greater than or equal to a + 14.	
840677	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1223 of SEQ ID NO:478. b is an integer of 15 to 1237. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:478. and where b is greater than or equal to a + 14.	
840678	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1084 of SEQ ID NO:479. b is an integer of 15 to 1098. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:479, and where b is greater than or equal to a + 14.	T63520. R75617, R75713, R78802, R79103. H25459, H27826. H85479. H85486. H92403. H92620. AA001384. AA001383. AA057832, AA235008. AA253050. AA424651. AA430054. AA430263. AA287947, AA288014, AA481556. AA491320, AA505123. AA548974. AA715297, AA736510, AA747303, AA748308, AA829746, AA909843. AA916866, AA642031, AA211184. AA398153. AA399494. AA477559, AA477676, AA782481, AI079168, AI040143, AI080176. AI082310. D12148
840680	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 670 of SEQ ID NO:480, b is an integer of 15 to 684, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:480, and where b is greater than or equal to a + 14.	
840691	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2981 of SEQ ID NO:481, b is an integer of 15 to 2995, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:481, and where b is greater than or equal to a + 14.	T83393, T84298, T84482. R72668, H05782. H06072. H17206, AA199607, AA236200, AA234037, AA256784, AA256492, AA256503, AA256504, AA255526, AA256710, AA424131, AA515794, AA580599, AA748677, AA872189, AA937350, AA995072, C00417, AA451719, AA992171, AI091615, F01634, F05381
840700	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1234 of SEQ ID NO:482, b is an integer of 15 to 1248, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:482, and where b is greater than or equal to a + 14.	N74558, W02490, AA250756, AA721388, AA937643, AA077596, AA633788, AA779964. AA812535, AA912417, AA978273, AA993172, AA993810, D20826
840701	Preferably excluded from the present invention are one or more polynucleotides comprising a	R72545. H77545. H77546, H91001, W46287. W67764. W67765.

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1848 of SEQ ID NO:483, b is an integer of 15 to 1862, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:483, and where b is greater than or equal to a + 14.	W72232, W76469, W95399, W95448, AA171990, AA172306, AA193490, AA193486, AA215714, AA481093, AA687382, AA721070, AA731304, AA765386, AA807488, AA830428, AA836173, AA872676, AA903225, AA947751, AA948309, AA679104, AA708104, AA844037, AA773240, AA906091, AI092620
840702	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1650 of SEQ ID NO:484, b is an integer of 15 to 1664, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:484, and where b is greater than or equal to a + 14.	T90642, T83169, R34427, R38259, R46634, R48960, R46634, H08738, H42054, H42099, N55339, N58337, N77345, N77705, W80824, W80945, AA022974, AA045928, AA047535, AA047635, AA129564, AA173541, AA173942, AA189109, AA232209, AA232711, AA256680, AA256679, AA661511, AA877392, AA876721, AA876373, AA977525, W26186, AA045814, AA455935, AA629608, AA456404, AA706605, AA716649, AA716749, AA777167, AA884059, AA910769, AA913276, AI091820, Z30152, Z38891, F05971, F10707
840705	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 955 of SEQ ID NO:485, b is an integer of 15 to 969, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:485, and where b is greater than or equal to a + 14.	
840715	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2558 of SEQ ID NO:486, b is an integer of 15 to 2572, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:486, and where b is greater than or equal to a + 14.	
840717	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1437 of SEQ ID NO:487, b is an integer of 15 to 1451, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:487, and where b is greater than or equal to a + 14.	T79990, R16372, R25837, R32657, R42317, R46835, R53484, R53485, R46835, R42317, R60577, R60630, R71392, R72562, H06281, H06328, H10997, H26530, W71994, W76508, W87458, W87554, AA029771, AA029772, AA039881, AA039966, AA046839, AA047010, AA057673, AA069571, AA069563, AA524160, AA865941, AI017434, AA649997, AA705373, AA776517, AI057398, AI078071, T17221, Z40755, Z45024
840718	Preferably excluded from the present invention are one or more polynucleotides comprising a	

	nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1186 of SEQ ID NO:488. b is an integer of 15 to 1200. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:488. and where b is greater than or equal to a + 14.	
840719	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 271 of SEQ ID NO:489. b is an integer of 15 to 285. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:489. and where b is greater than or equal to a + 14.	
840724	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 668 of SEQ ID NO:490. b is an integer of 15 to 682. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:490, and where b is greater than or equal to a + 14.	
840725	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1845 of SEQ ID NO:491, b is an integer of 15 to 1859. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:491. and where b is greater than or equal to a + 14.	T52811. T52812, R55369. R55607, H29580, H29664. N34553. N59374, N72870. N76477, N78788. N93946, W03090. W03506. W07215, W40445, W99359. W99389, AA031839, AA054995. AA120818, AA232731, AA236542, AA424556, AA424653, AA514847. AA528821, AA564104, AA808072, AA446773, AA449408. AA478629, AA644625, Z38400. Z42136
840727	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2695 of SEQ ID NO:492, b is an integer of 15 to 2709. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:492, and where b is greater than or equal to a + 14.	
840731	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1437 of SEQ ID NO:493. b is an integer of 15 to 1451, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:493. and where b is greater than or equal to a + 14.	R11513, R11731, R12441, R17288, R56469, R60452. H14889, H21054, R85192, H78221. H78227, H78420, H78427, N44642, N50726, N63598, N74649, N79564, W24822, AA121181, AA179753, AA180330, AA210820, AA227204, AA255636, AA687763, AA761335. AA948300, AA203176, AA216635. AA404332, AA434598. AA703138
840733	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to	

	1254 of SEQ ID NO:494. b is an integer of 15 to 1268. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:494. and where b is greater than or equal to a + 14.	
840734	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 370 of SEQ ID NO:495. b is an integer of 15 to 384, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:495, and where b is greater than or equal to a + 14.	
840736	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 961 of SEQ ID NO:496. b is an integer of 15 to 975, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:496. and where b is greater than or equal to a + 14.	W42658. W45183. W78758. W80493, W84630, W84681. W87610, W87901, W94898, W91935, AA484859, AA484987. AA505968. AA640115. AA573309. AA657855. AA659105. AA659440, AA715002, AA732364. AA740180. AA742752. AA746960, AA804898. AA825656. AA825665. AA987818. N83465, C14070. AA643844, AA652253, F20803. AA432012, AA678021. AA733050, AA782910. AA846523, AI076183. AI085413, D19829
840737	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2061 of SEQ ID NO:497, b is an integer of 15 to 2075, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:497, and where b is greater than or equal to a + 14.	T67132, T67133, T87248, H56042, H56119, N25201, N69014, AA128513, AA129959. AA425701, AA428551. AA911113, AA976370, AA987472, AI004931. AI081047, D80388, D80909. D80910. D81505, C14479, C14492, C14494, C14493, C14495, C14514, C14527, C15539, AA283123. AA779369. AA773654, AI051187, AI091167, AI093159, T24488. AA694308. AA700909
840739	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1890 of SEQ ID NO:498, b is an integer of 15 to 1904, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:498, and where b is greater than or equal to a + 14.	
840746	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2857 of SEQ ID NO:499. b is an integer of 15 to 2871. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:499, and where b is greater than or equal to a + 14.	R12296, R12807, R16375, R16741, R18738. R38102, R42319. R43498, R44177. R51993, R51994, R43498. R43060, R44177. R42319, H40121, H40275. N22396. N69345. W37333. W38750, AA054559, AA054619. AA131766. AA131779, AA150020, AA150085. AA255834, AA548724. AA807007, AA825362, AA828253. N83830. N85321.

		N86360, AA205805, AA436905, AA709097, AA725018, Z22234, T03480, AI016816, AI093402, F08823, F10788
840748	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1610 of SEQ ID NO:500, b is an integer of 15 to 1624, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:500, and where b is greater than or equal to a + 14.	
840750	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 834 of SEQ ID NO:501, b is an integer of 15 to 848, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:501, and where b is greater than or equal to a + 14.	
840751	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3178 of SEQ ID NO:502, b is an integer of 15 to 3192, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:502, and where b is greater than or equal to a + 14.	T39881, T40844, T40852, T40854, T40860, T40866, T50407, T50538, T55741, T94376, T94464, H27286, H81895, H94293, N78697, N99150, W19295, W21325, W24158, W25537, W45247, W72714, W93341, W95026, AA027063, AA065228, AA064926, AA070691, AA099952, AA127948, AA127982, AA142908, AA150910, AA460946, AA461252, AA230313, AA494344, AA534955, AA535709, AA557910, AA564147, AA564626, AA583542, AA523611, AA594463, AA595987, AA603874, AA613440, AA613660, AA635415, AA578985, AA568423, AA916523, AA922346, AA935323, AA650041, AA652730, AA654746, AA454065, AA486952, AA487075, AA487215, AA706108, AA722670, AA846544, AA853055, AA853056, AA853392, AA861048, AA991772, AI042420, AI074102, AI078712, AI041798, AI095622
840757	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 669 of SEQ ID NO:503, b is an integer of 15 to 683, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:503, and where b is greater than or equal to a + 14.	T50000, T50064, T50195, T58356, T58401, T58454, T59152, T94178, R06456, R06510, R72766, R72767, H02583, H02966, H04264, H39892, H41455, H44794, H46477, H46959, H51519, N45305, N54519, N54756, N63507, N64319, N76221, N94805, AA053467, AA056133, AA075160, AA078755, AA078756, AA079464, AA079463, AA079663, AA079767, AA088705, AA100045, AA100739, AA112276, AA112446, AA112416,

		AA113258. AA113355. AA113436. AA115702. AA115703. AA127146. AA132371. AA132616. AA147349. AA147400. AA151458. AA151459. AA156143. AA156398. AA157076. AA157164. AA157503. AA158148. AA158599. AA159018. AA159163. AA159790. AA159943. AA160779. AA160885. AA160895. AA160910. AA179280. AA181232. AA181237. AA181305. AA181255. AA181209. AA181326. AA182784. AA187267. AA187185. AA187224. AA187761. AA186497. AA186503. AA187019. AA187058. AA187039. AA187079. AA188443. AA192753. AA192829. AA192840. AA193199. AA193200. AA194570. AA421647. AA427634. AA469030. AA480763. AA482684. AA493670. AA501840. AA506094. AA507481. AA513173. AA514900. AA515423. AA524000. AA526363. AA526377. AA528558. AA528622. AA528762. AA533899. AA552652. AA555119. AA564174. AA564196. AA582614. AA583793. AA584240. AA588860. AA603073. AA604397. AA577162. AA662810. AA689248. AA689277. AA714332. AA714522. AA720655. AA729281. AA865192. AA888414. AA912488. AA934668. AA936157. AA947503. AA953047. AA961820. AA968484. AA976297. AA983436. AA988025. AA988424. AA991968. AA975722. AI074486. F19276. F19560. N84316. N85047. AA641348. AA641489. AA095374. AA095772. AA167520. AA652050. AA654250. F21094. F21095. AA434414. AA434512. AA470088. AA471285. AA486483. AA669755. AA431412. AA431815. AA434279. F22216. AA776904. AA835523. AA844771. AA845270. AA846028. AA846115. AA788715. AA861511. AA989575. AI027165. AI090099. D19841
840759	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2182 of SEQ ID NO:504, b is an integer of 15 to 2196. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:504, and where b is greater than or equal to a + 14.	R88018, N46360. N48866
840760	Preferably excluded from the present invention are	T73701. T73726. R09199. R09304.

	one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 935 of SEQ ID NO:505. b is an integer of 15 to 949. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:505. and where b is greater than or equal to a + 14.	R18652. R48578. R48679. R73134. H72715. H97957. N56993. N73552. W74357. W76552. AA278851. AA508168. AA508735. AA512928. AA528091. AA766418. AA862669. AI003767. AI081289. AA417379. AA421192. AA609588. AA706851. AA285337. AA993015. AI001776. AI082525
840770	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 351 of SEQ ID NO:506, b is an integer of 15 to 365, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:506, and where b is greater than or equal to a + 14.	
840781	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2045 of SEQ ID NO:507, b is an integer of 15 to 2059, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:507, and where b is greater than or equal to a + 14.	T50486. T50620. T92253. T92297. T75117. R13719. R20099. R20756. R24896. R32452. R38544. R39672. R66654. R67375. R71953. R80144. R80145. H09238. H09239, H49089. H49178. H79086. H79087. H81170. H82251, H82354, H94594. H98533. H98540. H98561. N23328. N32489. N33553. N34608. N34615. N35704. N36791. N37062. N45951. N46374. N52614. N55340, N77346. N91916. W24093. W32300. W44887. W52202. W69110, W69235. W93030, W92919, AA010331. AA010332. AA070031. AA070335. AA075063. AA075062. AA085451. AA102617. AA113366. AA113445. AA133629. AA133675. AA131776. AA131809. AA136710. AA136808. AA151948. AA156555, AA157722. AA173681. AA181930, AA187541. AA187547, AA188217, AA186364. AA186932, AA459989, AA463983. AA464118, AA424144, AA424186. AA430453, AA216418. AA524319. AA535579. AA553797, AA582340. AA581875, AA586801, AA617881. AA579678, AA737057, AA736930. AA761601, AA807605. AA805212. AA809972. AA902407. AA902991. AA908502. AA916123, AA932301. AA947441. AA991523, N89110. N89294, C03132. AA093540. AA094654, AA149916. AA648245. AA447373, AA449202. AA598721. AA599096. AA670234. AA722507. AA779120. AA843601. AA844334. AA868803. AA906425, AA927243. AI021936. AI023003. AI022112. AI057609. AI073779. AI088646.

		AI093414. T17246. T16420. F01940. F02536. F03439. F05682. F06177. F06249. F04246. F07152. F07995
840789	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1323 of SEQ ID NO:508. b is an integer of 15 to 1337. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:508. and where b is greater than or equal to a + 14.	H23265. AA250917. AA789157. AI033562, Z38280. F08582
840790	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 717 of SEQ ID NO:509, b is an integer of 15 to 731. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:509, and where b is greater than or equal to a + 14.	H87973. H88155. N66473. AA143034, AA151105. AA528233, AA584398. AA864579
840791	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 930 of SEQ ID NO:510, b is an integer of 15 to 944, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:510, and where b is greater than or equal to a + 14.	H21100, H40810. R89801. AA563736, AA595316. AI056419
840798	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 503 of SEQ ID NO:511, b is an integer of 15 to 517, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:511, and where b is greater than or equal to a + 14.	AA206675. T18945
840802	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3637 of SEQ ID NO:512, b is an integer of 15 to 3651, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:512, and where b is greater than or equal to a + 14.	
840803	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1922 of SEQ ID NO:513, b is an integer of 15 to 1936, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:513. and where b is greater than or equal to a + 14.	T98263, R01276, R01777. H87694, N46514, AA064627, AA064791. AA076077. AA076159, AA083580, AA176354, AA186922. AA188542, AA192936, AA193132. AA234329, AA262890, AA284101, AA284046, AA827592, AA635005. AI015442. AI015761
840809	Preferably excluded from the present invention are one or more polynucleotides comprising a	

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1163 of SEQ ID NO:514, b is an integer of 15 to 1177, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:514, and where b is greater than or equal to a + 14.	
840811	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 918 of SEQ ID NO:515, b is an integer of 15 to 932, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:515, and where b is greater than or equal to a + 14.	T60555
840813	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1145 of SEQ ID NO:516, b is an integer of 15 to 1159, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:516, and where b is greater than or equal to a + 14.	
840814	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2437 of SEQ ID NO:517, b is an integer of 15 to 2451, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:517, and where b is greater than or equal to a + 14.	T63362, T63686, T88888, T88889, T84250, T84251, R37080, R66483, H27722, H27723, R94403, H53971, H53972, H87801, H87857, N46002, N56932, W38961, W52373, AA032177, AA032176, AA034375, AA034374, AA042798, AA044611, AA044801, AA044666, AA056392, AA056506, AA085500, AA102623, AA100630, AA100629, AA122020, AA122019, AA127357, AA128179, AA126320, AA142870, AA150744, AA150871, AA169401, AA186750, AA188493, AA188849, AA189134, AA587050, AA740555, AA743649, AA805220, AA836673, AA837076, AA878369, AA906612, AA978334, AA977667, AA996072, AA640853, AA442873, C75140, AA628152, AA707458, AA725734, AA844284, AA868206, AA868822, AA884344, AA904845, AI082506, Z40412, F07337
840817	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 975 of SEQ ID NO:518, b is an integer of 15 to 989, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:518, and where b is greater than or equal to a + 14.	R24111, H13796, H39542, W87508, AA045018, AA055435, AA115239, AA137113, AA182593, AA459912, AA598757, AA772338, AI033925, AI041486, D31101
840825	Preferably excluded from the present invention are one or more polynucleotides comprising a	

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3301 of SEQ ID NO:519, b is an integer of 15 to 3315, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:519, and where b is greater than or equal to a + 14.	
840826	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2347 of SEQ ID NO:520, b is an integer of 15 to 2361, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:520, and where b is greater than or equal to a + 14.	R12213, T79259, R52573, H90609, N34140, AA007443, AA126085, AA203195, AA251452, AA613266, D81536, Z24821
840827	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2507 of SEQ ID NO:521, b is an integer of 15 to 2521, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:521, and where b is greater than or equal to a + 14.	
840828	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1289 of SEQ ID NO:522, b is an integer of 15 to 1303, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:522, and where b is greater than or equal to a + 14.	T86672, T86764, T87773, T87774, R35654, R35761, H57667, H58507, N80737, W07534, W81050, W80799, W95751, W95521, AA040152, AA040816, AA070448, AA213733, AA461551, AA460625, AA471038, AA592998, AA662015, AA747769, AA827708, AA830241, AA393711, AA400724, F21899, AI023732, AI033332, AI089332
840829	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1086 of SEQ ID NO:523, b is an integer of 15 to 1100, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:523, and where b is greater than or equal to a + 14.	T55234, T53974, AA121362, AA121372, F17737, AA614605, AA662456, AA832106, AA939005, AA454502, AA629986, AA928745, AA993303, AI017897, AI052396
840831	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1949 of SEQ ID NO:524, b is an integer of 15 to 1963, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:524, and where b is greater than or equal to a + 14.	
840836	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to	R76181, N28426, AA249749, AA249759

	780 of SEQ ID NO:525. b is an integer of 15 to 794. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:525. and where b is greater than or equal to a + 14.	
840837	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2585 of SEQ ID NO:526. b is an integer of 15 to 2599, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:526. and where b is greater than or equal to a + 14.	T77944. R17636. H06632. W48792. W49617. AA121669. AA121741. AA876369. D80125. D79630. D79663. AA479160. AA773279. Z44214
840838	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1291 of SEQ ID NO:527. b is an integer of 15 to 1305. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:527. and where b is greater than or equal to a + 14.	T64743. R14614. H22783. H41174. H80646. H80683. N55490. N69823. N70603, N76977, AA036760. AA054012. AA057377. AA837761. AA987287. W04922, AA393640. AA435678. AA447554. AA448537. AA447593. AA448073. AA448092. AI080255, AI095479
840841	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1617 of SEQ ID NO:528. b is an integer of 15 to 1631. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:528. and where b is greater than or equal to a + 14.	R11201, R11254, R36000. R36374, R70779. R70831, R73839, R73838. R77816, R78184. H00444. H00487. H12294, H12343, H22227, H25152, H41334, H41582, H67783, H83813. N20077, N23800, N66638, N94763, W42581, W42593, AA029286. AA053585, AA053749, AA056556, AA058414, AA102286, AA112945, AA158256. AA160853, AA463315. AA464245, AA464353, AA426154, AA428022, AA554874, AA555227. AA594755, AA569425. AA572786, AA687312, AA721147, AA826769, AA907442, AA989227. AA436199, AA436324, AA723705. M91501, AA971764, AI057365, AI088555, AI090085. AI095652. AA772791
840842	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1930 of SEQ ID NO:529, b is an integer of 15 to 1944, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:529. and where b is greater than or equal to a + 14.	
840843	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1411 of SEQ ID NO:530, b is an integer of 15 to 1425, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:530. and where b is greater than or equal to a +	R07636, R07683, R56490. H15484, H57022. H99251, N21556, N22947, N29473. N33077, N40267, N41499. N44647. N54167. N62284. N67127. N77575, N79824. W72340, W73971. AA035483. AA035015, AA099228. AA136670. AA136786. AA514951. AA558780. AA581821.

	14.	AA767243. AA806856. AA832308. AA922693. D79892. N56078. C14941. AA654492. AA477457. AA477583. AA495757. AA495817. AA628697. AA628687. AA781710. AI004029. AI033065. AI076145. AI076166. AI080265. AI093765
840845	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1452 of SEQ ID NO:531, b is an integer of 15 to 1466. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:531. and where b is greater than or equal to a + 14.	H85970. H86679. N54585. N76666. W79488. W94055. AA012907, AA012992. AA018226. AA040388. AA040483. AA235697. AA424720. AA424881. AA468337. AA468480. AA470354, AA505886. AA533304. AA535176, AA558028. AA565018. AA568581. AA636065. AA569449, AA570195, AA580697. AA580574. AA769142. AA805257. AA857633, AA865266. AA974247. AA976018. AA983662. AI000909. AI074491. W94054. AA216680. AA283814. AA283815. AA293716. AA399618. AA411154, AA411153. AA430409. AA446547, AA446672. AA447405. AA447406. AA665639. Z19776. AA722802, AA776558, AA897739. AA773270, AI037944. AI056229. AI092063, Z39830, F02213, F04779. T65241. F12078. F09717
840847	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1644 of SEQ ID NO:532, b is an integer of 15 to 1658. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:532. and where b is greater than or equal to a + 14.	T93496, T96330, R33735, R56168, N29545, N47832, N52709. AA057861, AA057051. AA256421. AA423938, AA502373. AA594835. AA837984, AA937125. AA988563. AA642808, C16798, AA653712. D11569. D11567. D11568. D11572, AA759006
840851	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2843 of SEQ ID NO:533, b is an integer of 15 to 2857, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:533, and where b is greater than or equal to a + 14.	
840853	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1321 of SEQ ID NO:534, b is an integer of 15 to 1335. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:534. and where b is greater than or equal to a + 14.	T77874, T91147, T78073, T79015, H46575. H77369, N23303. N71319, N71370, W30700. W68080, W69637, AA029698. AA085548, AA100651. AA100446, AA150243. AA150317. AA179448. AA181464, AA187866. AA192778. AA257060. AA257151, AA483459. AA633204. AA579660. AA744468. AA745238. AA806004. AA806728. AA831848, AA832183. AA916113. AA916084.

		AA919159. AA918478. AI000093. AA094194. AA478126. AA488653. AA486512, AA598836, AA723044. AA844019. AA852336. AA904410. AA969896. AI002026. AA694486
840854	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2804 of SEQ ID NO:535. b is an integer of 15 to 2818. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:535. and where b is greater than or equal to a + 14.	
840858	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1383 of SEQ ID NO:536. b is an integer of 15 to 1397, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:536, and where b is greater than or equal to a + 14.	
840859	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1219 of SEQ ID NO:537, b is an integer of 15 to 1233, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:537, and where b is greater than or equal to a + 14.	T93690. AA046782. AA047471, H70453, W22335
840863	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1002 of SEQ ID NO:538, b is an integer of 15 to 1016, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:538, and where b is greater than or equal to a + 14.	
840868	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1665 of SEQ ID NO:539, b is an integer of 15 to 1679, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:539, and where b is greater than or equal to a + 14.	AA026007, AA053000, AA053532, AA078821, AA078789, AA126106, AA531460, AA553445, AA622619, AA877899, W63615, C03141, AA486740, C75022, AA682955, D25821
840869	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1066 of SEQ ID NO:540. b is an integer of 15 to 1080, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID	

	NO:540. and where b is greater than or equal to a + 14.	
840870	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2245 of SEQ ID NO:541. b is an integer of 15 to 2259. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:541. and where b is greater than or equal to a + 14.	
840875	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1333 of SEQ ID NO:542. b is an integer of 15 to 1347. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:542. and where b is greater than or equal to a + 14.	N47871. N51132. N79772, W07271. W40335, AA659745. AA454850. AA455191, AA457737, AA480848
840876	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1887 of SEQ ID NO:543, b is an integer of 15 to 1901. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:543, and where b is greater than or equal to a + 14.	H40365. N30582, N57227, AA099212. AA143504. AA429979, AA489199. AA490948. AA503094, AA515940. AA515972, AA526974, AA565952. AA832525, AA847119, AA975937, C16546. AA205184. AA446121, AA446243, AA446429, AI093502. T25068
840881	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 828 of SEQ ID NO:544, b is an integer of 15 to 842, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:544, and where b is greater than or equal to a + 14.	N31249, N33927. N49638, AA169623, AA885642, AA885643, AA995981, D80629. AA654491
840883	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 764 of SEQ ID NO:545, b is an integer of 15 to 778, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:545, and where b is greater than or equal to a + 14.	
840886	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2128 of SEQ ID NO:546, b is an integer of 15 to 2142, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:546, and where b is greater than or equal to a + 14.	
840887	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	

	formula of a-b. where a is any integer between 1 to 1879 of SEQ ID NO:547. b is an integer of 15 to 1893. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:547. and where b is greater than or equal to a + 14.	
840891	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 616 of SEQ ID NO:548. b is an integer of 15 to 630, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:548. and where b is greater than or equal to a + 14.	AA011494. AA036641. AA040117. AA464582, AA229586. AA514441. AA557363. AA605134. AA632063. AA569111. AA731914. AA764872, AA834230. AA865217. AA865800, AA931605. AA975800. AA476216. AA477563. AA664440, AA906128, AA909907, AA994640. AI024748. AA701389
840892	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 572 of SEQ ID NO:549. b is an integer of 15 to 586. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:549, and where b is greater than or equal to a + 14.	T78188, H72434. H81179. N27050, N31296. N56740, N98857. W92285. AA010281, AA017504, AA018836. AA053984
840894	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1572 of SEQ ID NO:550. b is an integer of 15 to 1586, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:550, and where b is greater than or equal to a + 14.	R13791. R18500. R19446. R19717, R26638, R34992. R37650, R41499. R44273. R44694, R49667, R41499. R44273, R44694, R49667. H10866, H21080. H21081. H24215, H24216, H56529. H82728, H83602. H97231, H98771, N23492, N25150. N28896, N52055, N55071, N58330, N77279, N77697, N80782. N80789, W68363, W68498. AA035669, AA063521, AA099156, AA099254, AA100828. AA115528, AA115527, AA122370, AA121425, AA134022. AA131828, AA131994. AA151142, AA151141, AA150051, AA150036, AA197292, AA234967, AA234148, AA252624, AA419370, AA425774, AA426238, AA429953, AA244068, AA244221, AA291229, AA508903, AA521037. AA521047, AA558219, AA639444, AA730255, AA738405, AA764865, AA769630. AA808135, AA866207, AA875854. AA886233, AA911989, AA912330, AA918110, AA933817, AA960949. AA961737, AA970707, AA983973. AI084859, N87221, AA642352, C15736, AA095273. AA206988, AA649545, AA410978, AA443533. AA446839, AA599172. AA599632, AA625694, AA668705. AA678761. AA679282, AA843723, AI041402. AI041859. AI090256. Z40745, F03594, F03920. F07349. F07665. F07689.

		D12052. AA702844
840896	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2129 of SEQ ID NO:551. b is an integer of 15 to 2143. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:551. and where b is greater than or equal to a + 14.	T70566. T70837. R34229. R77683, H72423. N70430. W78960. W80454. AA157568. AA425171. AI081752. AA450124. AA450190. AA479929. AA626156. AI023982. AI079467. D20574
840897	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1620 of SEQ ID NO:552. b is an integer of 15 to 1634. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:552. and where b is greater than or equal to a + 14.	R08644, AA085919. AA085920. AA112589, AA291296. AA531553. AA534454. AA610556. AA632339. AA826535. AA873598. AA973899. AI000209, W22275. AA642711. AA285014. AA290836. AA291785. AA487868. AA487869. AA598896, AA732931. D20744
840898	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 264 of SEQ ID NO:553. b is an integer of 15 to 278. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:553, and where b is greater than or equal to a + 14.	
840904	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2644 of SEQ ID NO:554, b is an integer of 15 to 2658, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:554, and where b is greater than or equal to a + 14.	
840905	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1714 of SEQ ID NO:555, b is an integer of 15 to 1728, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:555, and where b is greater than or equal to a + 14.	
840908	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 3341 of SEQ ID NO:556, b is an integer of 15 to 3355. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:556. and where b is greater than or equal to a + 14.	
840909	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	N26769. N30855, N91934. W17097, W76127. AA010929. AA011317. AA026824. AA026957.

	formula of a-b, where a is any integer between 1 to 1065 of SEQ ID NO:557, b is an integer of 15 to 1079, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:557, and where b is greater than or equal to a + 14.	AA065084, AA064997, AA113980, AA113972, AA187311, AA187412, AA491244, AA503832, AA527886, AA603076, AA767201, AA768552, AA806008, AA857130, AA862053, W69334, N90880, AA285256, AA853981, AA971357, AI015443, AI037999, AI089498, F04542
840910	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 710 of SEQ ID NO:558, b is an integer of 15 to 724, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:558, and where b is greater than or equal to a + 14.	
840912	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3111 of SEQ ID NO:559, b is an integer of 15 to 3125, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:559, and where b is greater than or equal to a + 14.	T89929, T97560, T97607, T98767, T98768, R75684, R76638, H29662, R91419, H63674, H84562, N22625, N23668, N59616, N67124, N75308, N78169, W04760, W15411, W15522, W31605, W39524, AA007425, AA007426, AA044991, AA044990, AA161382, AA161383, AA190884, AA190852, AA195140, AA195346, AA195347, AA278498, AA515881, AA523692, AA557400, AA579985, AA732611, AA813932, AI053747, D80095, D80559, D80940, D82547, D82557, D82494, C01801, R29401, AA404683, AA404214, AA634226, AA456641, AA812584, AA884056, AI004948, AI033808, AI038706, AI073466, D20935, Z40790, Z45057, F02232, F05993, AA700153, AA700480
840916	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2631 of SEQ ID NO:560, b is an integer of 15 to 2645, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:560, and where b is greater than or equal to a + 14.	
840917	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1703 of SEQ ID NO:561, b is an integer of 15 to 1717, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:561, and where b is greater than or equal to a + 14.	H30515, H58512, AA428216, AA429793, AA888482, AA402294, AA478415, AA665865, AI079558
840918	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	T63366, T63794, T63819, T72173, T72951, T74098, T74471, R40321, R54813, R40321, H28292, H87420,

	formula of a-b, where a is any integer between 1 to 2403 of SEQ ID NO:562, b is an integer of 15 to 2417, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:562, and where b is greater than or equal to a + 14.	H96805, H99895, H99896, N21575, N26498, N35550, N35899, N43971, N46316, N50289, N62230, N67269, N67736, N79322, W03582, W20379, W35114, W93987, W93993, W93961, AA002131, AA002085, AA010861, AA010895, AA032150, AA039874, AA046207, AA046213, AA075922, AA076246, AA076245, AA082698, AA100666, AA100665, AA102690, AA101322, AA115198, AA115199, AA127068, AA125791, AA130142, AA130164, AA160133, AA160152, AA181132, AA223399, AA223717, AA223794, AA225618, AA225617, AA225893, AA226087, AA281188, AA467866, AA532633, AA548553, AA548715, AA565709, AA595388, AA604287, AA610139, AA574387, AA574403, AA576771, AA827594, AA857936, AA862174, AA886789, AA894576, AA933053, AA961640, AA962084, AA971648, AI017658, AI089036, U48642, AI084032, W29098, AA041518, AA206338, AA206730, AA204730, AA218606, AA285284, AA293327, D11555, AA450117, AA626655, AA666366, AA679791, AA844183, AA883770, AA904568, AA904956, AA913275, AA913772, Z39779, F06739, F07232
840922	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1530 of SEQ ID NO:563, b is an integer of 15 to 1544, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:563, and where b is greater than or equal to a + 14.	
840923	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2285 of SEQ ID NO:564, b is an integer of 15 to 2299, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:564, and where b is greater than or equal to a + 14.	
840927	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 350 of SEQ ID NO:565, b is an integer of 15 to 364, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:565.	

	and where b is greater than or equal to a + 14.	
840928	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2467 of SEQ ID NO:566, b is an integer of 15 to 2481, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:566, and where b is greater than or equal to a + 14.	R52991, R52992, AA075795, AA236859, AA237058, AA258294, AA490530, AA582199, AA594981, AA768625, AA918784, AA400122, AA400211, AA599540, AA620310, AA757241, AA853706, Z44647
840929	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1350 of SEQ ID NO:567, b is an integer of 15 to 1364, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:567, and where b is greater than or equal to a + 14.	T65391, T65468, T82268, T83555, R23120, R23121, H05767, H15242, H15243, N27484, N75846, W07429, W55965, W55966, W69486, W69610, AA024480, AA024481, AA035363, AA035364, AA036732, AA045784, AA045785, AA054537, AA054576, AA058867, AA081962, AA082833, AA122107, AA122108, AA160026, AA506569, AA582633, AA593717, AA593757, AA596048, AA741487, AA830268, AA834091, AA917654, AA922770, AA948018, C00527, AA648362, AA448872, AA447937, AA708846, AA769947, AA775569, AA835167, AI090227, F02032, F11824, F09473
840930	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1592 of SEQ ID NO:568, b is an integer of 15 to 1606, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:568, and where b is greater than or equal to a + 14.	T66390, R13067, R20192, R40498, R44978, R54122, R40498, R44978, R55825, R55910, R56182, H05938, H10239, H13040, H22780, H22987, H26826, H28018, R84898, R85844, N48284, N49013, W59970, AA029938, AA030050, AA037606, AA040869, AA043138, AA147575, AA152015, AA152022, AA152089, AA152096, AA150150, AA152219, AA156446, AA429964, AA470402, AA528114, AA594982, AA595134, AA886444, AA972352, F18878, C04576, AA090702, C16326, AA649510, AA211287, AA211332, AA443358, AA446384, AA666350, AA993887, AI032649, AI096674, Z24984, Z25108, Z25360, Z33590, T25134, Z37011, F12229, F00286, F09858
840931	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1371 of SEQ ID NO:569, b is an integer of 15 to 1385, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:569, and where b is greater than or equal to a + 14.	AA164298, AA164299, AA215696, AA553729, AA600053

840941	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1130 of SEQ ID NO:570, b is an integer of 15 to 1144, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:570, and where b is greater than or equal to a + 14.	T71972, T72113, N66952, AA037833, AA037834, AA503937, AA514259, AA568671, C04493, AA400259, AA703387, AA897154, AA905309, AA991791, AI091736, AI097161, AA699338, AA699546
840944	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2740 of SEQ ID NO:571, b is an integer of 15 to 2754, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:571, and where b is greater than or equal to a + 14.	R53077, R53166, N66228, N66588, N98299, N98791, W52420, W58722, AA054166, AA102647, AA101300, AA224382, AA224448, AA504618, AA504713, AA505965, AA577583, AA766244, AA837194, AA936390, AA938580, AA969268, AI056953, Z25291, Z28894, T25120
840945	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2643 of SEQ ID NO:572, b is an integer of 15 to 2657, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:572, and where b is greater than or equal to a + 14.	
840948	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2338 of SEQ ID NO:573, b is an integer of 15 to 2352, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:573, and where b is greater than or equal to a + 14.	
840949	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 314 of SEQ ID NO:574, b is an integer of 15 to 328, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:574, and where b is greater than or equal to a + 14.	
840953	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1664 of SEQ ID NO:575, b is an integer of 15 to 1678, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:575, and where b is greater than or equal to a + 14.	
840954	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to	T70122, R01105, R01854, R26511, R50976, W39281, W88823, AA190914, AA220964, AA223912, AA224067, AA292591, AA516293,

	2494 of SEQ ID NO:576. b is an integer of 15 to 2508. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:576. and where b is greater than or equal to a + 14.	AA888082. AA093864. AA644303. AA668429. AA680062. AA705885. Z25045. Z25169. Z28742. Z40110. F06996. F00269
840958	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1517 of SEQ ID NO:577. b is an integer of 15 to 1531. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:577, and where b is greater than or equal to a + 14.	T92026. T92127. T96602. T99639. R07023. R70248. R74432. H24617. H25443. H25488. H25814. H39512. H49218. H49404. H85371. H98480. N21621. N28860. N32291. N44577, N93796. W19136. W46407. N89924. AA252381. AA252643, AA230168. AA251928. AA252509. AA280831. AA281028. AA570114. AA570316. AA688054. AA731686, AA731363. AA737178. AA743784, AA761782. AA805326. AA806145. AA806698. AA807626. AA810694. AA811702. AA857654. AA903433. AA947731. AA976482. AA977020. D80646. AA448459, AA722871, AA834947, AA844661, AA868828. AA912953. AA971589. AI032540, AI093489. Z33450
840960	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1230 of SEQ ID NO:578. b is an integer of 15 to 1244, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:578, and where b is greater than or equal to a + 14.	R80950. R81055. H17096. H17714. H21600, H28031, H39514, N25283, N48074, N93030, N93491, AA005164, AA005250. AA037756, AA039247. AA062857, AA062864, AA159264, AA461323. AA482290, AA523938, AA548271, AA602298, AA612800, AA580232, AA878960, AA954638, AA983694. AA948176. AA452852. AA452868, AA628205, AA629208, AA707757, AA884020, AI086383. AI092362, AA952907. F03951. F04326. F07686
840968	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2511 of SEQ ID NO:579, b is an integer of 15 to 2525, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:579, and where b is greater than or equal to a + 14.	
840969	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 3992 of SEQ ID NO:580. b is an integer of 15 to 4006, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:580, and where b is greater than or equal to a + 14.	
840972	Preferably excluded from the present invention are one or more polynucleotides comprising a	

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 551 of SEQ ID NO:581, b is an integer of 15 to 565, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:581, and where b is greater than or equal to a + 14.	
840973	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2514 of SEQ ID NO:582, b is an integer of 15 to 2528, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:582, and where b is greater than or equal to a + 14.	T92934, T93051, T95827, T95922, R01416, R01417, R14186, R40475, R40475, R62217, H02303, H02413, N91928, N92794, W19380, W24105, W24106, W92317, W92353, AA009695, AA009414, AA016232, AA022718, AA022810, AA031668, AA031669, AA135522, AA135584, AA233766, AA233817, AA468889, AA502015, AA514448, AA524548, AA613782, AA740659, AA831839, AA856642, AA865523, AA933090, AA937529, AA937525, AA995177, D45313, D80956, C04688, AA642850, C15075, C15074, AA652169, AA404513, AA485401, AA485562, AA626502, AA703641, AI014270, AI027694, AI052552, AI080105, AI094104, Z24781, Z28475, D20204, AA699913
840975	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 493 of SEQ ID NO:583, b is an integer of 15 to 507, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:583, and where b is greater than or equal to a + 14.	AA187971, AA491557
840978	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1917 of SEQ ID NO:584, b is an integer of 15 to 1931, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:584, and where b is greater than or equal to a + 14.	
840980	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1006 of SEQ ID NO:585, b is an integer of 15 to 1020, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:585, and where b is greater than or equal to a + 14.	T91979, T85031, R51511, H08105, H14962, H84344, H95886, N67113, AA001485, AA033681, AA045053, AA045054, AA460816, AA548181, AA602217, AA627119, AA919072, N85463, AA090718, AA090747, AA205839, AA215860, AA889349, AI005058, AI051749
840982	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to	

	753 of SEQ ID NO:586. b is an integer of 15 to 767. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:586. and where b is greater than or equal to a + 14.	
840985	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 833 of SEQ ID NO:587. b is an integer of 15 to 847. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:587. and where b is greater than or equal to a + 14.	AA469388. AA469387. AA579307. AA838301
840989	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2144 of SEQ ID NO:588, b is an integer of 15 to 2158. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:588, and where b is greater than or equal to a + 14.	T56570. T56419. T74072. H02553. H02636. H05217. H28221. H28270. H53671. N24892. N26327, N36312. N39771, N43761, W19923. N91268. AA132017, AA132120. AA195204. AA195313. AA196452. AA196696. AA227654. AA232501. AA232165. AA429770. AA281620. AA281676. AA468179. AA515887. AA533678. AA551958. AA639446, AA577363, AA579740. AA721360. AA729621. AA769527. AA814423, AA826344, AA903583, D81898. D81970. C04597, AA216528, AA216535. AA442781. AA452285, AA452436, AA709278, AA718938, AA771705, AA771724, AA868151, AA993850, AI033921, Z32830, AA952909, F11180, F11002, F11632
840991	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2285 of SEQ ID NO:589, b is an integer of 15 to 2299, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:589, and where b is greater than or equal to a + 14.	T81125. N29118, N36444, N46478, AA169588. AA169707, AA190390, AA197190. AA465591. AA569663, AA572882, AA927990. AI031844, W26259. W26429, W27367. W27994, W28877, AA453067, Z39013, Z42882
840996	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2166 of SEQ ID NO:590, b is an integer of 15 to 2180, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:590. and where b is greater than or equal to a + 14.	R11816, T80577, R18182. R55973, R59293, R61044, H08547, H08548, H16428. AA001999, AA001722, AA181466, AA181638, AA530935, AA811299, AA774853. AA853584, T48535
840997	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1179 of SEQ ID NO:591. b is an integer of 15 to 1193, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID	H81891, N27695. AA242758, AA242898. AA262282. AA463638, AA443047. AA677853

	NO:591. and where b is greater than or equal to a + 14.	
840998	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1988 of SEQ ID NO:592. b is an integer of 15 to 2002. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:592. and where b is greater than or equal to a + 14.	H39956. R95173. N21653. N59206. AA126765. W25859. AA126814. AA411155. AA479348. AA663608. AA723137. AA904646. AA936314
840999	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1000 of SEQ ID NO:593, b is an integer of 15 to 1014, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:593. and where b is greater than or equal to a + 14.	T59001. R38613. AA558946. D80113. AA628765. AA931368. AI087859. AI087860. AI088020. AI088042. AI088041. Z41502. T59074. F10347
841000	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 319 of SEQ ID NO:594, b is an integer of 15 to 333, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:594, and where b is greater than or equal to a + 14.	T63281
841002	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1106 of SEQ ID NO:595. b is an integer of 15 to 1120, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:595, and where b is greater than or equal to a + 14.	N75236, N79007, W33128, AA044565, AA192107, AA194732, AA430142, AA602405. AA732494, AA730246, AA767992, AA836339, AI083657. AA206755. AA205076, AA649037. AA446467. AA722661, AA993269, AA994380, AI005394, AI032012
841003	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 518 of SEQ ID NO:596, b is an integer of 15 to 532, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:596, and where b is greater than or equal to a + 14.	N50091, W78173, W79236, AA758361, AA992853
841008	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1480 of SEQ ID NO:597, b is an integer of 15 to 1494, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:597. and where b is greater than or equal to a + 14.	T71281, T71345, T77436, R08136, R08137, R20906, R21385, R22903, R39269, R43069, R46481, R51904, R52702, R43069, R46481, R43120, R79482. H13227. H18911, H19203. H65049, H65050. H94075. H96326, H96721. N21076. N21154. N21166. N23977. N34347. N42814, N73453. N93204, W02856. W20197. W38726. W38956, W56890, N90551. AA007554. AA037417, AA040911. AA116130. AA116131.

		AA169544. AA169728. AA169445. AA173030. AA210740. AA211832. AA211833. AA420515. AA420563. AA420747. AA420808. AA459156. AA469336. AA480571. AA548615. AA554507. AA554716. AA559111. AA594680. AA602634. AA568997. AA857653, AA938636. AA962481. AA969819. AA988963. C01221. N87866. N88166. C06426. C16205. C16225. C16262, C16328. C16346, C16567. AA093646. AA094628. AA215845. AA248299, AA450084. AA450101. AA450141. AA450164, AA452926. AA453098. AA677261. AA704706. AA776452. AA782448. AA905622. AI024304. AI027088. T10244. T24104. F10814
841013	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2174 of SEQ ID NO:598, b is an integer of 15 to 2188, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:598, and where b is greater than or equal to a + 14.	
841014	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1259 of SEQ ID NO:599, b is an integer of 15 to 1273, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:599, and where b is greater than or equal to a + 14.	R13850, R36993, R40384, R49290, R49290, R70449, H20581, H22501, H41342, W52797, W63724, AA026917, AA149462, AA223955, AA232557, AA416604, AA282009, AA284187, AA534348, N83640. W28199, AA641025. AA652459, AA707275, D19833
841015	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1225 of SEQ ID NO:600, b is an integer of 15 to 1239, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:600, and where b is greater than or equal to a + 14.	T60712, T39204, T40475, T89115, R23975, R42835, R50864, R42835, R80780, R80929, R80980, R81030, R81287, H45854, R85410. H85126, H85165, H86110, H92458, H92459, H96689, N45682, N48966, N64273, N67340, W38863, W60856, W73806, W79809, W79590, AA031812, AA031892, AA039603, AA056740, AA058411, AA069773, AA069809, AA127774, AA133361, AA150512, AA186437. AA188784. AA215296. AA236042, AA250827, AA250884, AA258206, AA459963, AA480598. AA484831. AA524510, AA554692. AA627856. AA633499, AA633500, AA573552. AA577009. AA661865, AA838393. AA838126, AA872284, AA888617, AA954248, AA972651, AA974294. AA978242. AI000986. N84928. W28888.

		AA093374. AA095419. AA649576. AA447092. AA628724. AA635022. AA635099. AA708921. AA782622. AA845435. AA852359. AA283454, AA860493. AA905955. AI015482. AI033996. AI057611. AI041421. AI097090. T15984. F04083. F04704. AA693482
841018	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1272 of SEQ ID NO:601, b is an integer of 15 to 1286. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:601, and where b is greater than or equal to a + 14.	
841019	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 390 of SEQ ID NO:602. b is an integer of 15 to 404, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:602, and where b is greater than or equal to a + 14.	AA248515
841024	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1154 of SEQ ID NO:603. b is an integer of 15 to 1168, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:603. and where b is greater than or equal to a + 14.	
841025	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 444 of SEQ ID NO:604, b is an integer of 15 to 458, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:604, and where b is greater than or equal to a + 14.	AA188466
841026	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 897 of SEQ ID NO:605, b is an integer of 15 to 911, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:605, and where b is greater than or equal to a + 14.	N72911, AA148215, AA166925, AA228038, AA228148, AA483775, AA504475. AA740596, AA742681, AA808693, AA811844. AI054163, D12456. D12055, AA446237, AA599068, AI075720
841027	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 724 of SEQ ID NO:606. b is an integer of 15 to 738, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:606.	H41598, H62017, H69575. H69596, H84745, H95065, N36218. N54430. N80053. W52484. AA010201. AA235462, AA513394, AA559062. H84833. AA574343, AA835915, AA872643. AA877236

	and where b is greater than or equal to a + 14.	
841029	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1334 of SEQ ID NO:607. b is an integer of 15 to 1348. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:607. and where b is greater than or equal to a + 14.	T50950. T40351. T41210. T64654., T99782. T99883. R12658. R20557. R48599. R48701, R20557. H10512. R82975. R83815, H51313. H51908. H54291. H54369. H57072. H57073, H70169. H81838. H89935. H91980. N26532, N26640, N35643, N39712. N39735, N44132. N45472. N46821, N66762. N68174, N73964. N80633, N93213, N93218, N94936, W19558, W19581, W20315. W33192. W37258, W38673. W38998, W38807, W39086, W44806, W49655, W49729, W52842. W56034, W56019, W72523, W96449. W96546, N90712, AA022694. AA022787. AA033992. AA033993, AA055233, AA128163. AA125976, AA151620, AA228010. AA234230. AA235616. AA460804. AA428125. AA428126, AA244254. AA244044, AA282782, AA459422. AA465647, AA514260, AA524819. AA526652, AA527010, AA557557. AA593780, AA594299, AA604168, AA612788, AA622842, AA639066, AA729180, AA730491, AA737387, AA814201, AA847016, AA872392, AA873523, AA885963, AA902850, AA946931, AA968795, AA974320, AA977816, AI094935, AA642338, AA093758. AA094834, AA650022. AA248350, AA402422, AA446745, AA449102, AA449538, AA482267, AA431490, AA431697, AA432060. AA706083, AA706225, AA723554, AA724604, AA732823, AA772101, AA772330, AA781604, AA782387, AA843140, AA843480, AA843756. AA846144, AA846155, AA845500, AA854399, AA855096, AA860829, AA888776, AA889009, AI023231, AI028453, AI031906, AI031928, AI038365, AI051907, AI050990, AI056013. AI066647, AI073764, AI074709, AI076720, AI077283, AI040402, AI087021, AI088075, AI087912, AI092000, AI091592, AI092431. AI092579, AI095442. D20747, F05340, AA694556
841030	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 708 of SEQ ID NO:608. b is an integer of 15 to	T85016

	722, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:608, and where b is greater than or equal to a + 14.	
841031	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 316 of SEQ ID NO:609, b is an integer of 15 to 330, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:609, and where b is greater than or equal to a + 14.	
841034	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1852 of SEQ ID NO:610, b is an integer of 15 to 1866, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:610, and where b is greater than or equal to a + 14.	
841036	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2162 of SEQ ID NO:611, b is an integer of 15 to 2176, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:611, and where b is greater than or equal to a + 14.	
841039	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3605 of SEQ ID NO:612, b is an integer of 15 to 3619, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:612, and where b is greater than or equal to a + 14.	
841040	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1413 of SEQ ID NO:613, b is an integer of 15 to 1427, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:613, and where b is greater than or equal to a + 14.	
841048	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1419 of SEQ ID NO:614, b is an integer of 15 to 1433, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:614, and where b is greater than or equal to a + 14.	N69349, W37995, W37996, AA099842, AA129834, AA134879, AA136131, AA136101, AA213847, AA278288, AA278834, AA639630, AA743611, AA745858, AA765478, AA829501, AA830648, AA837909, AA877341, AA887480, AA910616, C01321, AA134878, AA410913, AA441809, AA441871, AA447551, AA679476, F13794

841049	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 492 of SEQ ID NO:615, b is an integer of 15 to 506, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:615, and where b is greater than or equal to a + 14.	AA206670
841050	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2160 of SEQ ID NO:616, b is an integer of 15 to 2174, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:616, and where b is greater than or equal to a + 14.	R13856, R36998, H88745, H88749, H88750, H88744, H88745, H88750, N20597, N27562, N28993, N40383, W23671, W42418, W42515, AA017276, AA054535, AA054527, AA081056, AA083641, AA165258, AA165257, AA195316, AA195497, AA504774, AA731655, AA743407, AA827654, AI074376, AA096064, AA677874, AI049801, T10385, D31353, AA700430
841052	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3133 of SEQ ID NO:617, b is an integer of 15 to 3147, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:617, and where b is greater than or equal to a + 14.	
841054	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2515 of SEQ ID NO:618, b is an integer of 15 to 2529, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:618, and where b is greater than or equal to a + 14.	
841055	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 537 of SEQ ID NO:619, b is an integer of 15 to 551, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:619, and where b is greater than or equal to a + 14.	T86070
841056	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1721 of SEQ ID NO:620, b is an integer of 15 to 1735, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:620, and where b is greater than or equal to a + 14.	T65020, T66102, T74444, R12529, R36487, R36488, R37425, R52082, R52176, N58833, N75250, AA573305, AA687450, AA687507, AA810182, AA815088, AA908253, AI084103, AA489756, AA844081, AA844438, AA854762, AA897722, F11861, F12468, T83267, F09506, F10088
841060	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	

	formula of a-b, where a is any integer between 1 to 1012 of SEQ ID NO:621, b is an integer of 15 to 1026, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:621, and where b is greater than or equal to a + 14.	
841061	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 656 of SEQ ID NO:622, b is an integer of 15 to 670, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:622, and where b is greater than or equal to a + 14.	W47450, AA491124
841062	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2149 of SEQ ID NO:623, b is an integer of 15 to 2163, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:623, and where b is greater than or equal to a + 14.	
841063	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 587 of SEQ ID NO:624, b is an integer of 15 to 601, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:624, and where b is greater than or equal to a + 14.	AA227288, AA282718
841067	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 579 of SEQ ID NO:625, b is an integer of 15 to 593, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:625, and where b is greater than or equal to a + 14.	
841074	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2258 of SEQ ID NO:626, b is an integer of 15 to 2272, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:626, and where b is greater than or equal to a + 14.	T39947, T40903, T90518, T90617, T86882, T86883, R11373, T79972, T83358, T83504, R16291, R18540, R18728, R21852, R21872, R32969, R33513, R34056, R35153, R37578, R41528, R42089, R50812, R41528, R42089, R63072, R63114, R66886, R68286, R68328, R77261, R77305, H04160, H04159, H09820, H09915, H11374, H11399, H11475, H11580, H20564, H20656, H20724, H20725, H45913, R87571, H71492, H71493, H77970, H77971, H85921, H95617, H97011, H97137, H97973, H99201, H99869, N20626, N21042, N23341, N23509, N27621, N27863, N28554, N28813, N33434, N35711, N36525, N40636, N42409, N50418, N50473,

		N55217, N55526, N77009, W15345, W31916, W39297, W39437, W40562, W40586, W52515, W56373, W56584, W56673, W56738, W60072, W73328, AA001060, AA001061, AA001355, AA012936, AA013022, AA020854, AA021013, AA021245, AA021350, AA041249, AA044791, AA057517, AA070118, AA081114, AA081289, AA081518, AA081758, AA081654, AA081910, AA081807, AA083386, AA083520, AA084143, AA084169, AA084637, AA102204, AA101101, AA112305, AA112273, AA113158, AA113205, AA113234, AA113290, AA112514, AA114269, AA114292, AA121997, AA121998, AA122357, AA122358, AA127073, AA125796, AA134357, AA134635, AA148203, AA148204, AA148658, AA148659, AA156277, AA156388, AA158662, AA159027, AA160336, AA159855, AA160818, AA176261, AA176262, AA181259, AA182937, AA187516, AA186906, AA186943, AA210754, AA211829, AA223289, AA223297, AA223271, AA223898, AA223866, AA223865, AA223930, AA224002, AA226834, AA227007, AA251494, AA464562, AA464663, AA282038, AA282381, AA282799, AA282890, AA454945, AA455324, AA459366, AA459591, AA471068, AA493188, AA506956, AA515184, AA525415, AA528016, AA531574, AA557548, AA559080, AA558794, AA601508, AA602820, AA604093, AA580330, AA665041, AA688154, AA714131, AA721076, AA729400, AA730738, AA736940, AA745800, AA746251, AA747771, AA749097, AA761791, AA765245, AA769486, AA810468, AA809803, AA815070, AA815124, AA825529, AA827628, AA827818, AA830566, AA831651, AA832026, AA836109, AA856618, AA858034, AA862500, AA908700, AA916911, AA923104, AA911251, AA922814, AA948643, AA975963, AA976127, AA988496, AA995369, AI015981, D82125, N85599, N85825, W60998, N87121, N88156, C05715, C05853, AA046846, AA641779, AA070117, C20828, C21327, AA159483, AA206049, AA206104, AA206105,

		AA206439. AA206436. AA206529. AA206577. AA206641. AA205227. AA205214. AA205483. AA205488. AA205554. AA205495. AA205683. AA205707, AA205655. AA648896. AA649019, AA211090. AA211201. AA219240. AA219379. AA248392. AA263057. AA436015. AA436120. AA444131. AA449168. AA485456, AA488660. C74998. C75053, C75178. C75578. C75650. AA598408. AA600229. AA633997. AA664255. AA670477. AA456958. AA457067. AA457333. AA707431, AA708046. AA708052. AA722286, AA679711. AA774733. AA776895. AA778320. AA782343. AA852970. AA852969. AA853367. AA854017. AA884081. AA913264. AI003524. AI003161. AI061383. AI079587, AI080214. AI085729. AI088540, AI088599. T10660. T11369. T16057. T17106. Z41696. T16213. T27465, F01519, F02134, T54069. F07296. F13614, F13652, AA702026
841076	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 857 of SEQ ID NO:627, b is an integer of 15 to 871, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:627, and where b is greater than or equal to a + 14.	
841081	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 765 of SEQ ID NO:628, b is an integer of 15 to 779, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:628. and where b is greater than or equal to a + 14.	H80595. N66964. W60868, W60944, AA554024. AA581858, AA603775, AA569390, AA721420, AA730838, AA746990. AA764955, AA824533, AA886662, AA902151, AA922977, AA931633, AI004155, C17761, AA643235, AA249456, AA401851, AA447213, AA769929, AA861067, AA868853, AI001993, AI038228, AI080577, D12310, AA699302. AA700733
841083	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1821 of SEQ ID NO:629. b is an integer of 15 to 1835. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:629, and where b is greater than or equal to a + 14.	
841089	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	T97583. H27459. H28283. H30123. H30163. H40493. H64399, H99038, N20188. N29090. W24593.

	formula of a-b, where a is any integer between 1 to 1083 of SEQ ID NO:630, b is an integer of 15 to 1097, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:630, and where b is greater than or equal to a + 14.	W47194, W47309, W51990, W52638, W56428, W56312, W73795, W78984, W80386, W85832, W87763, W87679, W93594, W93490, AA010192, AA010091, AA229878, AA230283, AA508851, AA553908, H64447, AA582764, AA805299, AA877051, AI053512, AI053734, AI054001, AI054092, AI054119, AI054274, AI054309, AA758790, AA972288, AI028150, AI077801, AI092052, D20235, T97631
841093	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1523 of SEQ ID NO:631, b is an integer of 15 to 1537, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:631, and where b is greater than or equal to a + 14.	
841097	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1887 of SEQ ID NO:632, b is an integer of 15 to 1901, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:632, and where b is greater than or equal to a + 14.	
841098	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1736 of SEQ ID NO:633, b is an integer of 15 to 1750, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:633, and where b is greater than or equal to a + 14.	T39572, R32405, R78435, R82780, H01823, W23901, AA705025
841101	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1912 of SEQ ID NO:634, b is an integer of 15 to 1926, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:634, and where b is greater than or equal to a + 14.	R11755, R12465, R23435, R54254, H10274, N31847, W63594, AA488942, AA581018, AA767423, N56490, W26165, N87429, AA093862, Z41898
841113	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1332 of SEQ ID NO:635, b is an integer of 15 to 1346, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:635, and where b is greater than or equal to a +	

	14.	
841115	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1570 of SEQ ID NO:636, b is an integer of 15 to 1584, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:636, and where b is greater than or equal to a + 14.	
841116	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1649 of SEQ ID NO:637, b is an integer of 15 to 1663, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:637, and where b is greater than or equal to a + 14.	
841117	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3933 of SEQ ID NO:638, b is an integer of 15 to 3947, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:638, and where b is greater than or equal to a + 14.	
841125	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1413 of SEQ ID NO:639, b is an integer of 15 to 1427, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:639, and where b is greater than or equal to a + 14.	R40268, R40268, R60037, H05829, H71311, H71355, H94227, N30711, N56686, W70033, W80987, W94564, W92648, AA036715, AA043642, AA045098, AA045127, AA057355, AA070703, AA150080, AA186980, AA196549, AA513466, AA564458, H92998, AA584288, AA587915, AA746344, AA749431, AA836837, AA946608, AA977318, AI000432, AI000474, AA150015, AA487107, AA777153, AA778651, AA778720, AA824341, AI038357, AI038499, AI076148, AI077415, AI040155, AI090830, T16464, AA682387
841127	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 906 of SEQ ID NO:640, b is an integer of 15 to 920, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:640, and where b is greater than or equal to a + 14.	N56381
841128	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1692 of SEQ ID NO:641, b is an integer of 15 to	

	1706, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:641, and where b is greater than or equal to a + 14.	
841132	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2156 of SEQ ID NO:642, b is an integer of 15 to 2170, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:642, and where b is greater than or equal to a + 14.	
841133	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1698 of SEQ ID NO:643, b is an integer of 15 to 1712, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:643, and where b is greater than or equal to a + 14.	
841134	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1779 of SEQ ID NO:644, b is an integer of 15 to 1793, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:644, and where b is greater than or equal to a + 14.	T74160, R06227, R06228, R20261, N39674, AA010503, AA010502, AA258312, AA258463, AA261908, AA737428, AA775864, F12625
841135	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2665 of SEQ ID NO:645, b is an integer of 15 to 2679, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:645, and where b is greater than or equal to a + 14.	T87474, T81011, T98855, T99451, R12662, R20561, R35774, R20561, H21581, H30226, H30799, H38312, R87419, R87929, H60442, H60488, H82962, H83193, N66578, N98838, W02116, W32577, W74585, W94377, AA228054, AA228143, AA242795, AA252182, AA482136, AA491273, AA503197, AA603089, AA740514, AA847687, AA872051, AA904292, AA908878, AA937801, AA937818, AA937819, AA989229, AI081549, W27606, W28260, C01173, AA090299, AA292408, AA394244, AA430326, AA443626, AA678857, AA779761, AA838766, AA860401, AA890101, AA772701, AA905819, AA913578, AA913854, AA916557, AI073446, AI040348, AI086394, F04810, F08603
841136	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 818 of SEQ ID NO:646, b is an integer of 15 to 832, where both a and b correspond to the positions	T75313, R38678, H08805, H08881, H29671, W45345, AA460481, AA461049, AA514387, AA928902, C06109, C15637, AI033621, F13191, F10796

	of nucleotide residues shown in SEQ ID NO:646. and where b is greater than or equal to a + 14.	
841138	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1311 of SEQ ID NO:647. b is an integer of 15 to 1325. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:647. and where b is greater than or equal to a + 14.	T74162. R08056. R37869. R51362, H95451. N47377. N50420. N51509. N56992. N63081. W02768. W74061. W78768. W81120, AA004354. AA004355. AA010410, AA011238. AA194618. AA461179, AA492472. AA602060. AA742194. AA886331. AA904165. AA947316. AA969817. C02127. AA642584. AA393447. AA398743. AA449962. AA706890. AA757113. AA777532. AA812606. AA971808. AA947589, AI033060. AI077473. F12626. F10242
841139	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 592 of SEQ ID NO:648. b is an integer of 15 to 606. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:648. and where b is greater than or equal to a + 14.	
841141	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1682 of SEQ ID NO:649, b is an integer of 15 to 1696, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:649, and where b is greater than or equal to a + 14.	T70178, T78370, H06915. H19407, H20353, H59580. H68320. AA282429. AA504514. AA504598, AA564110. AA622709. AA635277, AA814782. AA094950. AA890363, AI082674, T69852
841142	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3045 of SEQ ID NO:650, b is an integer of 15 to 3059, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:650, and where b is greater than or equal to a + 14.	R16159, R55052, R59723, R59832, R72647, R72726. H60244. N33957. N49667. N73245. N79519. N79654, W16510, W16960. AA032239, AA033647, AA463305, AA280166, AA729292, AA954720, AA988492, AI015581, C02527, AA393868, AA478565, AA478698, AA773346, AI032816, AI078056, Z38500, Z42263. R15417. AA701338
841145	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1352 of SEQ ID NO:651, b is an integer of 15 to 1366, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:651, and where b is greater than or equal to a + 14.	T50010, R23613, R26166, R31656, R32370, H43626. H44680, R97791, R97841, H96639, N36375. AA192798, AA236435. AA262943, AA491551, AA491856, AA506260, AA533612, AA563684. AA639509, AA193170, AA453170. AA478555, AA478689, AA628811, AA971928
841146	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1411 of SEQ ID NO:652. b is an integer of 15 to	T49969. T55739. T55781, R44196, R44196. R56223. R65770, R65861, H07914. H29735, H47548, N23748, N33136, N36915. N42188. N58782, AA044179. AA044364. AA056411.

	1425. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:652. and where b is greater than or equal to a + 14.	AA056659. AA088892. AA129553. AA136567. AA182691. AA460927. AA461231. AA423834. AA423872. AA429008. AA284199. AA502390. AA503746. AA524414. AA573485. AA731750. AA748643. N42149. C03886. C04870. AA401440. AA443282. AA453535. AA680012. AA885303. AA773518. AA905979. AA917504. AA993697. AI014527. AI038343. AI039552. AI075983. AI040477. T15474. Z40499
841150	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 600 of SEQ ID NO:653. b is an integer of 15 to 614. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:653, and where b is greater than or equal to a + 14.	
841153	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2798 of SEQ ID NO:654, b is an integer of 15 to 2812. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:654, and where b is greater than or equal to a + 14.	
841154	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1983 of SEQ ID NO:655, b is an integer of 15 to 1997, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:655, and where b is greater than or equal to a + 14.	
841156	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1583 of SEQ ID NO:656, b is an integer of 15 to 1597, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:656, and where b is greater than or equal to a + 14.	
841157	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 358 of SEQ ID NO:657, b is an integer of 15 to 372, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:657, and where b is greater than or equal to a + 14.	
841159	Preferably excluded from the present invention are one or more polynucleotides comprising a	T68013. T68157. R10329. R21935. R22192. R22205. R22243. R22259.

	nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1212 of SEQ ID NO:658. b is an integer of 15 to 1226. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:658. and where b is greater than or equal to a + 14.	R22584. R36709. R37550. R37969. R56215. H12513. H16028. H42778. H42777. H43237. H49572. H54638. H62014. H62015. H87009. H96461. H99230. N20416. N21538. N26351. N26416. N31763. N32343. N57436. N68981, N76396. N94358. W47130. W47170, W47092. W47303, W56010. W56319. W57999, W58082. W72901. W80918, W80919. W96026. W96247. AA009932. AA027098. AA035781. AA055834. AA056358. AA135747, AA135791. AA243433. AA513298. AA526888. AA553702, AA564515, AA569564. AA578962. AA659038. AA664637. AA664725. AA687093. AA863102. AA865570. AA937259. AA948115. F18278. F19594. N56026. AA642679. AA205043. AA284794. AA284555. AA402214. AA402779. AA421675. AA421674. AA442253. AA477073. AA670491. F22786. AA703506. AA732970. AA854540. AA993128. AI023954, AI039979, AI041931. AI094341. T24697. R10328
841164	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 450 of SEQ ID NO:659, b is an integer of 15 to 464, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:659, and where b is greater than or equal to a + 14.	
841167	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2535 of SEQ ID NO:660, b is an integer of 15 to 2549, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:660, and where b is greater than or equal to a + 14.	
841170	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1148 of SEQ ID NO:661, b is an integer of 15 to 1162. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:661. and where b is greater than or equal to a + 14.	R01156, R05766, R36365. H10217, H10272. R85306, R85305. R92966. R94593, R94594, H87399. N30640, N62299, N67420, N75554. N95145, W69646, W69647, W87822, W87911. AA025260. AA025338. AA054320, AA054420, AA070779, AA132029, AA132151, AA147254. AA156241. AA173636. AA458647, AA458883. AA459073. AA282256, AA490721, AA491213. AA581846. AA581975, AA592924. AA617652. AA715103. AA827927. AA878469.

		AA922921. AA931906. AI024987. AI031704. R29605. AA641542. AA210625. AA447827. AA679290. AA845918. AA992688. AI005398. AI093117
841173	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1164 of SEQ ID NO:662. b is an integer of 15 to 1178. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:662. and where b is greater than or equal to a + 14.	T55223. T80732. R48806. R48918. H04949. H04950. H39561. AA039409. AA100837. AA128896. AA143629. AA191274. AA191696. AA223135. AA223325. AA421101. AA426158. AA910569. AA399132. AA399614. AA481845. F01004
841176	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 726 of SEQ ID NO:663. b is an integer of 15 to 740. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:663. and where b is greater than or equal to a + 14.	T57362. T57445. N98867. W04663. W58769. AA148433. AA156103. AA157650. AA157759. AA192185. AA194358. AA491525. AA492088. AA515848. AA526390. AA639064. AA575866. AA579682. AA728989. AA737291. AA740468. AA741404. AA827641. AA862841. AA932208. AA974467. AA995725. F19218. F19304. N55638. N56464. N89217. AA247353. AA401334. F20491. F20992. F21312. AA608827. F22463. F22587. AA705812. AA889507
841178	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1656 of SEQ ID NO:664. b is an integer of 15 to 1670. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:664. and where b is greater than or equal to a + 14.	
841180	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 3350 of SEQ ID NO:665. b is an integer of 15 to 3364. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:665. and where b is greater than or equal to a + 14.	
841181	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1209 of SEQ ID NO:666. b is an integer of 15 to 1223. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:666. and where b is greater than or equal to a + 14.	
841182	Preferably excluded from the present invention are one or more polynucleotides comprising a	

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1983 of SEQ ID NO:667, b is an integer of 15 to 1997, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:667, and where b is greater than or equal to a + 14.	
841185	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 572 of SEQ ID NO:668, b is an integer of 15 to 586, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:668, and where b is greater than or equal to a + 14.	R52220, R70423, N35269, N40823, W42954, AA281810, AA524713, AA093155
841187	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1083 of SEQ ID NO:669, b is an integer of 15 to 1097, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:669, and where b is greater than or equal to a + 14.	R13459, R37369, AA814459, AA977199, AA989190, AI004908, F19612, C15655, AA203403, AA486444, AA489297, AA677279, AA775589, AA909931, AI032801, AI034230, AI040649, AI091697
841188	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2886 of SEQ ID NO:670, b is an integer of 15 to 2900, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:670, and where b is greater than or equal to a + 14.	
841189	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 973 of SEQ ID NO:671, b is an integer of 15 to 987, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:671, and where b is greater than or equal to a + 14.	AA001736, AA132627, AA568390, F19019, W26201, W69639, W69638
841192	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2811 of SEQ ID NO:672, b is an integer of 15 to 2825, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:672, and where b is greater than or equal to a + 14.	T71550, T83900, R08468, T83730, T96865, T96866, R25503, R33010, R33895, R35402, R49701, R49701, H26757, H26856, H26871, H64273, H64272, H79029, N38824, N45452, N59621, N78174, W32994, AA022663, AA022744, AA033910, AA034030, AA210790, AA215315, AA228688, AA489044, AA552631, AA761038, AA761245, AA765845, AA805289, AA862618, AA918378, AA991204, C20951, AA476743, AA476746, AA663218, AA663792, AA706854, AI022429, AI028102, AI038738, AI051573, AI051788, AI082582, AI084275, D25731,

		F04009. F06746. F07761. AA701500. AA702733
841194	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1416 of SEQ ID NO:673. b is an integer of 15 to 1430. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:673. and where b is greater than or equal to a + 14.	T74233. T88950. T89868. R11972. T84649. R18375. R27737. R27738. R37065. R42578. R42578. R61382. R61424. R69423. R69553. R77025. H00275. H00276. H08524. H08525. R97851. H81046, H81141. AA429044. AA429638. AA504809. AA505159. AA552544. AA582297. AA613016. AA627349. AA639590. AA573385. AA576599. AA657983. AA804493. AA866130. AA866200. AA908911. AA908916. AA922964. AI088797. AA648981. AA649000, AA442874. AA456809. AA479714, AA479836. AA485736. AA486457. AA448038. AA431346. AA434235. AA434321. AA683236. AA779612. AA885013. AA948075. AI004354. AI039367. AI090972. AA953777. T19678. F12570. F10186
841195	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1111 of SEQ ID NO:674, b is an integer of 15 to 1125. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:674, and where b is greater than or equal to a + 14.	
841198	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1063 of SEQ ID NO:675, b is an integer of 15 to 1077, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:675, and where b is greater than or equal to a + 14.	
841200	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 906 of SEQ ID NO:676, b is an integer of 15 to 920, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:676, and where b is greater than or equal to a + 14.	R55754, R55738, H22912. H24090, H29740, AA232258, AA442918, Z42805, F13301
841201	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1233 of SEQ ID NO:677. b is an integer of 15 to 1247. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:677. and where b is greater than or equal to a + 14.	AA932596. D80656, D81201, D81580, C15574. AI025303, AA701535

841202	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2653 of SEQ ID NO:678. b is an integer of 15 to 2667. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:678. and where b is greater than or equal to a + 14.	
841209	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 938 of SEQ ID NO:679, b is an integer of 15 to 952, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:679, and where b is greater than or equal to a + 14.	
841210	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2295 of SEQ ID NO:680. b is an integer of 15 to 2309, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:680. and where b is greater than or equal to a + 14.	
841213	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 437 of SEQ ID NO:681, b is an integer of 15 to 451, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:681, and where b is greater than or equal to a + 14.	AA133947
841217	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1284 of SEQ ID NO:682, b is an integer of 15 to 1298, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:682, and where b is greater than or equal to a + 14.	C17425
841219	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 845 of SEQ ID NO:683, b is an integer of 15 to 859, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:683, and where b is greater than or equal to a + 14.	
841222	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1237 of SEQ ID NO:684, b is an integer of 15 to 1251, where both a and b correspond to the	

	positions of nucleotide residues shown in SEQ ID NO:684. and where b is greater than or equal to a + 14.	
841223	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2586 of SEQ ID NO:685. b is an integer of 15 to 2600. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:685. and where b is greater than or equal to a + 14.	T48001. T48881, T48882. T73986. T81100, T81151, T82458. R14770. R31779, R42540. R42540. R59226. R59286, R74588, R78473. R78539, H11611, H11700. H24632. H30034, H42336, R99669, N27968, N40733. N93719, W21125, W73346, W94235, W94237, AA026530, AA039301. AA039302. AA039611. AA234259, AA460377, AA460815. AA428913, AA429928. AA468129. AA468177, AA490801, AA602786. AA622704, AA911637. AA972558. AA973705, AA987526, AI005182. AI032242, W21787. W27428, AA654230, AA443814, AA447184. AA453411, AA453917, AA479442, AA489468, AA885138, AA904627, AA972149, AI014507. AI079892. Z39201, Z43111, D45594, D45647, F13465. F10053. AA700349
841224	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 4627 of SEQ ID NO:686, b is an integer of 15 to 4641, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:686, and where b is greater than or equal to a + 14.	
841226	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 386 of SEQ ID NO:687, b is an integer of 15 to 400, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:687, and where b is greater than or equal to a + 14.	
841227	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 2737 of SEQ ID NO:688. b is an integer of 15 to 2751, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:688, and where b is greater than or equal to a + 14.	
841228	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 955 of SEQ ID NO:689. b is an integer of 15 to 969, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:689.	

	and where b is greater than or equal to a + 14.	
841231	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 965 of SEQ ID NO:690, b is an integer of 15 to 979, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:690, and where b is greater than or equal to a + 14.	
841232	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 679 of SEQ ID NO:691, b is an integer of 15 to 693, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:691, and where b is greater than or equal to a + 14.	AA187539, AA593955, AA865468, AA247589, AA292221, AA394258, AI090863, D20810
841233	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1368 of SEQ ID NO:692, b is an integer of 15 to 1382, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:692, and where b is greater than or equal to a + 14.	T86954, T87037, T91296, R11017, T78621, T79104, T84877, R00236, R00549, R06637, R27822, R27923, R35744, R45232, R45232, H21370, H21411, H51867, H60283, H60590, H67220, H99964, N28349, N30781, N41554, W47213, W47113, W67148, W67391, AA004695, AA004747, AA053562, AA053590, AA281060, AA287033, AA490978, AA586578, AA720644, AA766114, AA838572, AA907289, AA922314, AA923031, AA977015, AA975857, AI085503, AI085638, AA642438, AA399464, AA448558, AA449705, AA723708, AA781911, AA846349, AA861478, AA907377, AA907376, AA909728, AA913796, AA994740, AI017543, AI027687, AI042241, AI051442, Z41060
841234	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3084 of SEQ ID NO:693, b is an integer of 15 to 3098, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:693, and where b is greater than or equal to a + 14.	
841236	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 475 of SEQ ID NO:694, b is an integer of 15 to 489, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:694, and where b is greater than or equal to a + 14.	
841238	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	T40324, T41188, T74964, R10059, T80454, T85689, R12791, R19812, R24766, R24982, R33136, R33288,

	formula of a-b. where a is any integer between 1 to 1830 of SEQ ID NO:695. b is an integer of 15 to 1844. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:695. and where b is greater than or equal to a + 14.	R39060. R43570. R45243. R45498. R52595. R54047. R54048. R43570. R45243. R45498. H19030. H19321. H24420. H42322. H51876. H72225. H83771. H83913, H99717. N26245. N30134, N41682, N55555. N75922. N76940. N80564. W04682. W07687, W31765. W59945. W59946. W63652. W72530, W72085. W76498, W77868. AA081593. AA082766. AA084671. AA085794. AA088881. AA102302, AA127864. AA188946. AA188844, AA191212. AA196628. AA196960. AA631298. AA639450. AA904092, AA932353. AA961333. AA987825. AA988659, AA996270. AA205904. AA209353. AA393979. AA435659. AA453452. AA600183. AA663064. AA670333. AA774102. AA843676, AA854275. T03100. T03322. AI031917. AI066639. AI077924, AI078160. AI085089. T15361. T23623, T24082, Z42130. Z44535. F01670, F03604, F04096, F07839, F12754. F10361. AA700109
841239	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 591 of SEQ ID NO:696, b is an integer of 15 to 605, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:696, and where b is greater than or equal to a + 14.	R99939, H63661
841242	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 526 of SEQ ID NO:697, b is an integer of 15 to 540, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:697, and where b is greater than or equal to a + 14.	
841243	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 482 of SEQ ID NO:698, b is an integer of 15 to 496, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:698, and where b is greater than or equal to a + 14.	
841248	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 973 of SEQ ID NO:699, b is an integer of 15 to 987, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:699.	

	and where b is greater than or equal to a + 14.	
841250	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1661 of SEQ ID NO:700. b is an integer of 15 to 1675. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:700. and where b is greater than or equal to a + 14.	
841251	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 542 of SEQ ID NO:701, b is an integer of 15 to 556. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:701, and where b is greater than or equal to a + 14.	
841254	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1124 of SEQ ID NO:702, b is an integer of 15 to 1138. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:702, and where b is greater than or equal to a + 14.	AA765476, AA807570. AI056471. AI075269. T24438
841263	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1048 of SEQ ID NO:703, b is an integer of 15 to 1062. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:703, and where b is greater than or equal to a + 14.	H58432, AA996201, AA598598, AA676797
841266	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 851 of SEQ ID NO:704, b is an integer of 15 to 865, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:704, and where b is greater than or equal to a + 14.	AA194189, Z36730
841269	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1369 of SEQ ID NO:705, b is an integer of 15 to 1383, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:705, and where b is greater than or equal to a + 14.	
841272	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to	

	1141 of SEQ ID NO:706. b is an integer of 15 to 1155. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:706. and where b is greater than or equal to a + 14.	
841273	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1403 of SEQ ID NO:707. b is an integer of 15 to 1417. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:707. and where b is greater than or equal to a + 14.	H03779. H16233. AA026349, AA192805. AA662333. F19078. AA192917. AA921922. AI014904. Z30103
841276	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 934 of SEQ ID NO:708. b is an integer of 15 to 948, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:708, and where b is greater than or equal to a + 14.	
841277	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1315 of SEQ ID NO:709, b is an integer of 15 to 1329, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:709, and where b is greater than or equal to a + 14.	
841278	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 520 of SEQ ID NO:710. b is an integer of 15 to 534, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:710, and where b is greater than or equal to a + 14.	
841279	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1129 of SEQ ID NO:711, b is an integer of 15 to 1143, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:711, and where b is greater than or equal to a + 14.	R09746. R10170, R65983, R65982, AA159394
841280	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 3765 of SEQ ID NO:712. b is an integer of 15 to 3779, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:712. and where b is greater than or equal to a + 14.	R09747, R10073, R33389, R33390, R53830, R53881. R62135. R62236, R68366, R68572. H00283, H00284, H02853. H03749. AA157541, AA158194, AA159297. AA548738. D82787, C02009. AA443368, AA446944, AA431753. AA770228, AA947580. AA947962. AI091589. T48513

841282	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1022 of SEQ ID NO:713, b is an integer of 15 to 1036, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:713, and where b is greater than or equal to a + 14.	T74298, R51507, R78167, H08569, N39881, N57231, AA460120, N56328, N53397, N86852, N87082, C04661, AA090325, AA095234, AA095835, AA216220, AA904685, AA905691, Z26999, F12501
841283	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 4429 of SEQ ID NO:714, b is an integer of 15 to 4443, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:714, and where b is greater than or equal to a + 14.	T58069, T58183, R14589, R23688, R24089, R27635, R30799, R31679, R31721, R41362, R44141, R41362, R44141, R72635, R72711, H02881, H17299, H17300, H44461, N33623, N49466, W15423, W39662, W52186, W58286, W58287, AA034289, AA035171, AA040731, AA041202, AA043194, AA043349, AA043596, AA047418, AA047419, AA058764, AA101975, AA112998, AA114961, AA114960, AA127933, AA126680, AA156822, AA193516, AA195626, AA256538, AA256426, AA468894, AA507356, AA507368, AA516516, AA534147, AA555266, AA594917, AA631771, AA568460, AA715240, AA838519, C04979, AA707718, AA709391, AA725438, AA928191, AI024960, AI050938, AI074716, AI078311, AI087155, AI088407, AI088592, AI089297, Z38688, Z42494, AA683480, AA693964
841286	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2085 of SEQ ID NO:715, b is an integer of 15 to 2099, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:715, and where b is greater than or equal to a + 14.	T69086, H09300, H21912, H27306, H27307, H44750, H44751, AA028928, AA031481, AA031460, AA036634, AA040943, AA043170, AA042941, AA047185, AA057349, AA128136, AA224030, AA287364, AA287502, AA493521, AA506405, AA532934, AA635612, AA635790, AA017240, AA028927, AA043023, AA084506, AA126989, AA653687, AI040204, AI095872
841287	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 560 of SEQ ID NO:716, b is an integer of 15 to 574, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:716, and where b is greater than or equal to a + 14.	
841288	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 833 of SEQ ID NO:717, b is an integer of 15 to	

	847, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:717, and where b is greater than or equal to a + 14.	
841291	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2072 of SEQ ID NO:718, b is an integer of 15 to 2086, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:718, and where b is greater than or equal to a + 14.	
841292	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2404 of SEQ ID NO:719, b is an integer of 15 to 2418, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:719, and where b is greater than or equal to a + 14.	
841294	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2527 of SEQ ID NO:720, b is an integer of 15 to 2541, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:720, and where b is greater than or equal to a + 14.	
841296	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2157 of SEQ ID NO:721, b is an integer of 15 to 2171, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:721, and where b is greater than or equal to a + 14.	
841298	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1874 of SEQ ID NO:722, b is an integer of 15 to 1888, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:722, and where b is greater than or equal to a + 14.	
841301	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 966 of SEQ ID NO:723, b is an integer of 15 to 980, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:723, and where b is greater than or equal to a + 14.	T64693, R51679, R56608, H47224, N50001, N79401, W19677, AA143155, H59350, H69073, AA580509, AA487750, AA626464, T10911, T11398, T18502, T18605, T61708, F00905, F01050, F00254, F01055, F01138
841303	Preferably excluded from the present invention are	T80083, R18593, R24742, R27700,

	one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1798 of SEQ ID NO:724, b is an integer of 15 to 1812, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:724, and where b is greater than or equal to a + 14.	R38770, R43007, R43007, H15446, H15504, H22797, H23005, H24923, N94968, W30841, W39757, W40248, W84533, AA033611, AA127942, AA127976, AA132110, AA148952, AA148953, AA513119, AA524721, AA551707, AA564773, AA662707, AA814997, AA910847, AA927433, AA886610, W05640, W19569, W22703, W39296, C04698, AA096287, C75085, AA704257, AI032787, AI075657, AI086246, F04646, F08424, F00247
841304	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 960 of SEQ ID NO:725, b is an integer of 15 to 974, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:725, and where b is greater than or equal to a + 14.	
841305	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1494 of SEQ ID NO:726, b is an integer of 15 to 1508, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:726, and where b is greater than or equal to a + 14.	
841309	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1990 of SEQ ID NO:727, b is an integer of 15 to 2004, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:727, and where b is greater than or equal to a + 14.	R62724, H42483, H71117, H71118, N92184, N94614, W39691, W45047, W49839, AA046636, AA046775, AA047446, AA047503, AA160181, AA488796, AA741383, AA746409, AA811149, AA833797, AA946892, AA999767, AA249075, AA248881, AA451825, AA454157, AA628416, AA846238, AI004357
841314	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1456 of SEQ ID NO:728, b is an integer of 15 to 1470, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:728, and where b is greater than or equal to a + 14.	
841316	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1741 of SEQ ID NO:729, b is an integer of 15 to 1755, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:729, and where b is greater than or equal to a +	

	14.	
841318	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 423 of SEQ ID NO:730. b is an integer of 15 to 437, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:730, and where b is greater than or equal to a + 14.	
841321	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3649 of SEQ ID NO:731, b is an integer of 15 to 3663, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:731, and where b is greater than or equal to a + 14.	
841324	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2003 of SEQ ID NO:732, b is an integer of 15 to 2017, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:732, and where b is greater than or equal to a + 14.	T96831, AA258405, AA258750, H61868, AA828983, AA447894, T96832
841326	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1990 of SEQ ID NO:733, b is an integer of 15 to 2004, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:733, and where b is greater than or equal to a + 14.	T67169, T67170, R13400, R25161, R40914, R81373, H03937, N32627, N46428, N47847, N99904, W25263, W56840, W60329, W86618, W86691, AA062970, AA082457, AA100373, AA101448, AA126274, AA134708, AA150508, AA156712, AA157068, AA156974, AA165009, AA171491, AA171862, AA179767, AA180187, AA180497, AA179780, AA180441, AA187010, AA190353, AA195448, AA227391, AA258327, AA258536, AA262632, AA489087, AA489151, AA503664, AA523741, AA582440, AA588337, AA621830, AA621902, AA640554, AA568289, AA744568, AA761881, AA827997, AA847455, AA913189, AA913652, AA974509, U46229, N84275, N85488, N87880, AA641297, C21410, AA091107, AA095442, AA209417, AA219739, AA599903, AA676460, AA677610, AA678785, AA707112, AA725266, AA757097, AA779171, AA779610, AA852239, AA773175, AA993290, AI023440, AI026810, AI039755, AI082013, AI089353, AA773895
841328	Preferably excluded from the present invention are one or more polynucleotides comprising a	R93165, R93258, AA115956, AA251714, AA206198, AA676321

	nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1114 of SEQ ID NO:734. b is an integer of 15 to 1128. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:734. and where b is greater than or equal to a + 14.	
841329	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 758 of SEQ ID NO:735. b is an integer of 15 to 772, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:735. and where b is greater than or equal to a + 14.	
841330	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1085 of SEQ ID NO:736. b is an integer of 15 to 1099. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:736. and where b is greater than or equal to a + 14.	R22883. R66728, R78688. H95005, H95113. N27178. N39923. AA037201. AA991171, U69556. AA913589. AI085980
841333	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3205 of SEQ ID NO:737, b is an integer of 15 to 3219, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:737, and where b is greater than or equal to a + 14.	T59818, T59682, R12623, R20524, R21444. R35122. R20524. R64024. H89257. N93515, W21251, W33070, W35419. W96447, W96544. AA039907. AA043958, AA043824, AA045684, AA045685. AA088865, AA099890. AA126585. AA127996, AA128092, AA176159, AA491962. AA595337, AA610623. AA668991, AA688420, AA765329, AA768238, AA831102. AA908487. D81709, N89092. C02635, C04695, AA416971, AA469921, AA598468. AA634649, AA939133, AA995031. AI082151. AI123086. T19281
841334	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 835 of SEQ ID NO:738, b is an integer of 15 to 849, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:738, and where b is greater than or equal to a + 14.	
841335	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2055 of SEQ ID NO:739. b is an integer of 15 to 2069, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:739, and where b is greater than or equal to a + 14.	R22949, R23055, R78445, W19388. AA126774. AA133979, AA173276. AA210721. AA210826, AA287324. AA287338, AA504314. AA688155. AA829651. AA836121. AA934545. AI004681. AA205833. AA628867. AI028632. AI026835. AI075920
841336	Preferably excluded from the present invention are	

	one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1553 of SEQ ID NO:740, b is an integer of 15 to 1567, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:740, and where b is greater than or equal to a + 14.	
841337	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2815 of SEQ ID NO:741, b is an integer of 15 to 2829, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:741, and where b is greater than or equal to a + 14.	
841339	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 912 of SEQ ID NO:742, b is an integer of 15 to 926, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:742, and where b is greater than or equal to a + 14.	R05977, W07729, W85962
841340	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1003 of SEQ ID NO:743, b is an integer of 15 to 1017, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:743, and where b is greater than or equal to a + 14.	T87162, T87245, R83644, H65997, W86660, W87319, AA279035, Z25793
841341	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 347 of SEQ ID NO:744, b is an integer of 15 to 361, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:744, and where b is greater than or equal to a + 14.	
841342	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1922 of SEQ ID NO:745, b is an integer of 15 to 1936, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:745, and where b is greater than or equal to a + 14.	T61211, R31792, R31806, R31842, R31858, AA463633, AA279178, AA279190, AA419400, AA482006, AA521039, AA528684, D80048, AA649649, AA651768, AA652075, AA652129, AA293205, AA293206, AA443179, AA936343
841343	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1605 of SEQ ID NO:746, b is an integer of 15 to 1619, where both a and b correspond to the	T72227, T92679, R30797, H88591, H97509, N22238, N28360, AA045341, AA045429, AA054480, AA058517, AA085747, AA111873, AA112181, AA128375, AA146828, AA146642, AA169595, AA194346,

	positions of nucleotide residues shown in SEQ ID NO:746. and where b is greater than or equal to a + 14.	AA194443. AA425051. AA491535. AA491727. AA553943. AA603289. AA604115. AA618399. AA631253. AA632743. AA640345. AA565849. AA657551. AA657552. AA747335. AA888284. AA903805. AA903460. AA932251. AA932650. AI074492. W26992. W27525. AA092612. AA093936. AA095079. AA495989. AA844221. AA845438. AA897210. AA928087. AA970794. AI083509. F04554. F00612
841347	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 478 of SEQ ID NO:747. b is an integer of 15 to 492. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:747. and where b is greater than or equal to a + 14.	R14800. R25047. R59757. W23811. Z42261
841352	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 589 of SEQ ID NO:748. b is an integer of 15 to 603. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:748. and where b is greater than or equal to a + 14.	T39621. T47602. T47603. T50214. T50262. T56171. T59994. N69976, N70656. N92997. N98578. W19319. W21208. W25470. W38523. W79772. W79108. N90073. AA082281. AA083720. AA102538. AA111985. AA130519, AA130518. AA131208. AA155889, AA156193. AA157132. AA157188, AA159333. AA159346. AA159404, AA159443. AA166964, AA167042, AA425520. AA228398. AA228399, AA230245. AA420475. AA470507. AA470518. AA470554. AA470564, AA470784. AA480624. AA482721. AA483943. AA484448. AA492057, AA492060. AA501534. AA501688. AA501705, AA502485, AA503438. AA507807. AA522865. AA523150, AA523460. AA525078, AA531038, AA532886, AA534182, AA535479, AA541295. AA548431, AA559139, AA558899. AA559895. F16130, F17508. AA582864. AA582977, AA594817. AA600752, AA602218, AA603293. AA603440. AA614252, AA614593. AA627143. AA631240. AA639097. AA640665. AA569026, AA569795. AA573527, AA578708, AA578892. AA579475. AA580548. AA568421, AA654902. AA655027, AA657423, AA657485. AA657617. AA657745. AA657873. AA658089. AA659338. AA661580. AA662328. AA662945, AA664742. AA714342, AA721063. AA729626. AA729804. AA730697. AA737143. AA746051.

		AA814722, AA826140, AA838575, AA856900, AA857814, AA876960, AA879008, AA879230, AA886873, AA887104, AA888489, AA908834, AA922670, AA907193, AA931585, AA939179, AA969542, AA978087, AA988995, AI000230, AI002473, AI056486, AI066507, D45301, AI089666, AI094699, N84532, N84765, N86425, N89209, C14372, C14508, C14515, C14530, C14555, C14605, C14770, C14788, C14791, AA640945, C14863, C14868, AA090649, C14935, C15107, C15223, C15471, C15682, C15775, C15870, C15930, C15935, AA131294, AA643297, AA643298, AA643790, AA650598, AA652545, AA653802, AA653817, AA216075, AA216113, AA216340, AA249201, F20411, F20721, AA457776, AA478848, AA478850, AA479946, AA489323, AA609264, AA625634, AA669489, AA457581, F22821, AA845104, T25813, T26333, AA968927, AI080006, AI080259, D19689, T50162, T59495, F13766, AA694377
841353	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2031 of SEQ ID NO:749, b is an integer of 15 to 2045, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:749, and where b is greater than or equal to a + 14.	N70887, N80736, W06893, W07533, W86227, W86228, AA101268, AA877981, D79871, D81890, AA206735, AA205181, AA205255, AA205303, AA447456, AA454967, AA454966, AA778336, AA970143, T18602, D21013, Z38951, Z45683, T27468, T27472, F06030, F04572
841354	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1130 of SEQ ID NO:750, b is an integer of 15 to 1144, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:750, and where b is greater than or equal to a + 14.	H08639, W86219, AA136665, AA136781, AA256507, AA256508, AA603334, AA830237, AA978040, AA987352, AA733094, T10254, Z40940
841360	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1584 of SEQ ID NO:751, b is an integer of 15 to 1598, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:751, and where b is greater than or equal to a + 14.	
841366	Preferably excluded from the present invention are one or more polynucleotides comprising a	

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1471 of SEQ ID NO:752, b is an integer of 15 to 1485, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:752, and where b is greater than or equal to a + 14.	
841405	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1742 of SEQ ID NO:753, b is an integer of 15 to 1756, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:753, and where b is greater than or equal to a + 14.	
841526	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1781 of SEQ ID NO:754, b is an integer of 15 to 1795, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:754, and where b is greater than or equal to a + 14.	
841712	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1266 of SEQ ID NO:755, b is an integer of 15 to 1280, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:755, and where b is greater than or equal to a + 14.	
841860	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3651 of SEQ ID NO:756, b is an integer of 15 to 3665, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:756, and where b is greater than or equal to a + 14.	
842042	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1207 of SEQ ID NO:757, b is an integer of 15 to 1221, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:757, and where b is greater than or equal to a + 14.	R27775, R80938, R81040, H25849, H30556, H39898, H43685, H84621, H85342, H85863, H97623, N20020, N24066, N27150, N34137, N74869, AA013261, AA018222, AA056554, AA075594, AA111995, AA176737, AA196064, AA514335, AA731163, AA732094, AA769189, AA877155, AA887521, AA887647, AA915962, AI017806, C03891, AA648526, AA411503, AA890618, T03509, T11362, F00065
842453	Preferably excluded from the present invention are one or more polynucleotides comprising a	

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 617 of SEQ ID NO:758, b is an integer of 15 to 631, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:758, and where b is greater than or equal to a + 14.	
842635	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2482 of SEQ ID NO:759, b is an integer of 15 to 2496, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:759, and where b is greater than or equal to a + 14.	
842927	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2034 of SEQ ID NO:760, b is an integer of 15 to 2048, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:760, and where b is greater than or equal to a + 14.	R09931, T99454, R02759, R86215, H59062, AA193428, AA193451, AA235140, Z45646
842988	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1743 of SEQ ID NO:761, b is an integer of 15 to 1757, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:761, and where b is greater than or equal to a + 14.	R18558, R33656, R33770, R41425, R41425, R62291, R62292, H00771, H03451, H03535, H11769, H12026, H16764, H16873, H25402, H25403, H25761, H25802, H26331, N27708, N33053, N35107, N36527, N48776, N62848, N77755, W48862, W48734, AA016281, AA040052, AA045034, AA151597, AA149477, AA150284, AA150386, AA421931, AA458926, AA805628, AA831459, AA862368, AA946706, AI017010, D80611, D80610, D79660, Z78342, C21502, AA428166, AA446595, AA452707, AA718983, AA722005, AA861846, AI025497, AI051843, Z24971, Z28673, Z40541, Z44707
843080	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 4434 of SEQ ID NO:762, b is an integer of 15 to 4448, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:762, and where b is greater than or equal to a + 14.	
843237	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2876 of SEQ ID NO:763, b is an integer of 15 to 2890, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID	

	NO:763. and where b is greater than or equal to a + 14.	
843381	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1689 of SEQ ID NO:764. b is an integer of 15 to 1703. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:764. and where b is greater than or equal to a + 14.	
843718	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 248 of SEQ ID NO:765. b is an integer of 15 to 262. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:765. and where b is greater than or equal to a + 14.	
843823	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 3058 of SEQ ID NO:766. b is an integer of 15 to 3072. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:766. and where b is greater than or equal to a + 14.	
844056	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1307 of SEQ ID NO:767, b is an integer of 15 to 1321, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:767, and where b is greater than or equal to a + 14.	
844325	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b. where a is any integer between 1 to 1518 of SEQ ID NO:768, b is an integer of 15 to 1532, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:768, and where b is greater than or equal to a + 14.	H13033, H19108. W17353
844344	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2555 of SEQ ID NO:769, b is an integer of 15 to 2569. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:769, and where b is greater than or equal to a + 14.	
844368	Preferably excluded from the present invention are one or more polynucleotides comprising a	

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1623 of SEQ ID NO:770, b is an integer of 15 to 1637, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:770, and where b is greater than or equal to a + 14.	
844408	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2471 of SEQ ID NO:771, b is an integer of 15 to 2485, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:771, and where b is greater than or equal to a + 14.	R25739, R25848, R26585, R26669, R38347, R43382, R43382, R82340, R82389, H22162, H22213, H86274, H86550, H86638, N48320, N49046, N73714, AA019818, AA122109, AA152348, AA152349, AA158712, H86273, AA595813, AA612911, AA995417, C04219, AA018291, AA442061, AA442163, AA724417, AA923788, T03807, AI038239, AI051425, Z39949, F03166, F06863, F06899, F10884
844508	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 418 of SEQ ID NO:772, b is an integer of 15 to 432, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:772, and where b is greater than or equal to a + 14.	AA043997
844867	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1034 of SEQ ID NO:773, b is an integer of 15 to 1048, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:773, and where b is greater than or equal to a + 14.	R23270, R24465, H26326, N67923, AA181941, AA187906, AA687695, AA740438, AA879229, D81116, D81140
845000	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1005 of SEQ ID NO:774, b is an integer of 15 to 1019, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:774, and where b is greater than or equal to a + 14.	R22590, H92298, W04657, W31581, W37780, W39080
845281	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2234 of SEQ ID NO:775, b is an integer of 15 to 2248, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:775, and where b is greater than or equal to a + 14.	T92139, T93566, T94885, T94933, R15017, R17377, R25556, R25791, R26489, R26511, R46713, R46790, R53266, R41457, R46790, R46713, R95961, R95995, R96764, R97692, H56545, H89870, H89871, H89871, N22103, N39443, N45521, N48555, N67524, N67561, N75299, N75567, N75882, W04741, W05590, W57992, W58076, AA001138, AA001282, AA001943, AA001919, AA027274, AA029603, AA082792.

		AA102442. AA101126. AA150932, AA150901. AA176661. AA176888. AA223622. AA461513. AA177059. AA229768. AA230089. AA493436. AA516126. AA528397. AA551566. AA583433. AA610274. AA613338. AA665090. AA744004. AA744054. AA770662. AA829788. AA865467. AA864190. AA878328. AA922466. AA932042. AA933800. AA935845. AA973926. AA977231. AA988822. AA992503. AA995390. AI082412. AI094769, D82171. N85713. W25970. W28703. C00856. C04813. C05281. AA648060. AA650341. AA651636. AA452618. AA453239. AA626597. AA670375. AA679935. AA722603. AA770004. AA846222. AA890020. AA927073. AA992606. AI034036. AI056096. T16991. T23523. T19071. F01728. F02334. F05468. F06081. F04719, F08503
845288	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1591 of SEQ ID NO:776. b is an integer of 15 to 1605. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:776, and where b is greater than or equal to a + 14.	
845750	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1794 of SEQ ID NO:777. b is an integer of 15 to 1808, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:777, and where b is greater than or equal to a + 14.	T54633, T54715, T59162. T59200, T65736. T65810. R13590. R71878. H71816, H71817. H75311, H78458, H93320, H93493. N49894. N49998, N79774. N93610. W07272, W25098, W25505, W79872, W80977, W81080, AA010657, AA010658, AA024456, AA024672, AA053380. AA053095. AA148051, AA196637, AA196919, AA223159, AA234295, AA262985, AA425287, AA425492, AA551815, AA552317, AA614604, AA617675, AA639422, AA570121, AA568154, AA847251, AA983567, AI015662. C00349, N87765, C02759. C03904. C04889. C05299, C05572. AA248273, AA290679. AA402015. AA402941, AA411366. AA411367, AA411431, AA411547. AA481876. AA482058. AI032553. AI038761. AI077405. AI088638. T16907. T16906. D31160, D31471. F02456. F02921. F02975. F06184. F06650
845809	Preferably excluded from the present invention are	

	one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1470 of SEQ ID NO:778, b is an integer of 15 to 1484, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:778, and where b is greater than or equal to a + 14.	
846077	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1329 of SEQ ID NO:779, b is an integer of 15 to 1343, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:779, and where b is greater than or equal to a + 14.	

Polynucleotide and Polypeptide Variants

The present invention is directed to variants of the polynucleotide sequence disclosed in SEQ ID NO:X or the complementary strand thereto. and/or the cDNA sequence contained in a cDNA clone contained in the deposit.

The present invention also encompasses variants of the prostate and prostate cancer polypeptide sequence disclosed in SEQ ID NO:Y, a polypeptide sequence encoded by the polynucleotide sequence in SEQ ID NO:X. and/or a polypeptide sequence encoded by the cDNA in the related cDNA clone contained in the deposit.

"Variant" refers to a polynucleotide or polypeptide differing from the polynucleotide or polypeptide of the present invention, but retaining essential properties thereof. Generally, variants are overall closely similar, and, in many regions. identical to the polynucleotide or polypeptide of the present invention.

The present invention is also directed to nucleic acid molecules which comprise, or alternatively consist of, a nucleotide sequence which is at least 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99% or 100%, identical to, for example, the nucleotide coding sequence in SEQ ID NO:X or the complementary strand thereto, the nucleotide coding sequence of the related cDNA contained in a deposited library or the complementary strand thereto, a nucleotide sequence encoding the polypeptide of SEQ ID NO:Y, a nucleotide sequence encoding a polypeptide sequence encoded by the nucleotide sequence in SEQ ID NO:X, a nucleotide sequence encoding the polypeptide encoded by the cDNA in the related cDNA contained in a deposited library, and/or polynucleotide fragments of any of these nucleic acid molecules (e.g., those fragments described herein). Polypeptides encoded by these nucleic acid molecules are also encompassed by the invention. In another embodiment. the invention encompasses nucleic acid molecules which comprise or alternatively consist of, a polynucleotide which hybridizes under stringent hybridization conditions, or alternatively, under low stringency conditions, to the nucleotide coding sequence in SEQ ID NO:X, the nucleotide coding sequence of the related cDNA clone contained in a deposited library, a nucleotide sequence encoding the polypeptide of SEQ ID NO:Y, a nucleotide sequence encoding a polypeptide sequence encoded by the nucleotide sequence in SEQ ID NO:X, a nucleotide sequence encoding the polypeptide encoded by the cDNA in the related cDNA clone contained in a deposited library, and/or polynucleotide fragments of any of these nucleic acid molecules (e.g., those fragments described herein). Polynucleotides which

hybridize to the complement of these nucleic acid molecules under stringent hybridization conditions or alternatively. under lower stringency conditions, are also encompassed by the invention. as are polypeptides encoded by these polynucleotides.

The present invention is also directed to polypeptides which comprise. or alternatively consist of. an amino acid sequence which is at least 80%, 85%, 90%, 95%, 96%, 97%, 98%. 99% or 100% identical to, for example, the polypeptide sequence shown in SEQ ID NO:Y, a polypeptide sequence encoded by the nucleotide sequence in SEQ ID NO:X, a polypeptide sequence encoded by the cDNA in the related cDNA clone contained in a deposited library, and/or polypeptide fragments of any of these polypeptides (e.g., those fragments described herein). Polynucleotides which hybridize to the complement of the nucleic acid molecules encoding these polypeptides under stringent hybridization conditions. or alternatively. under lower stringency conditions, are also encompassed by the invention, as are polypeptides encoded by these polynucleotides.

By a nucleic acid having a nucleotide sequence at least, for example, 95% "identical" to a reference nucleotide sequence of the present invention, it is intended that the nucleotide sequence of the nucleic acid is identical to the reference sequence except that the nucleotide sequence may include up to five point mutations per each 100 nucleotides of the reference nucleotide sequence encoding the polypeptide. In other words, to obtain a nucleic acid having a nucleotide sequence at least 95% identical to a reference nucleotide sequence, up to 5% of the nucleotides in the reference sequence may be deleted or substituted with another nucleotide, or a number of nucleotides up to 5% of the total nucleotides in the reference sequence may be inserted into the reference sequence. The query sequence may be, for example, an entire sequence referred to in Table 1, an ORF (open reading frame), or any fragment specified as described herein.

As a practical matter, whether any particular nucleic acid molecule or polypeptide is at least 80%, 85%, 90%, 95%, 96%, 97%, 98% or 99% identical to a nucleotide sequence of the present invention can be determined conventionally using known computer programs. A preferred method for determining the best overall match between a query sequence (a sequence of the present invention) and a subject sequence, also referred to as a global sequence alignment, can be determined using the FASTDB computer program based on the algorithm of Brutlag et al. (Comp. App. Biosci. 6:237-245 (1990)). In a sequence alignment the query and subject sequences are both DNA sequences. An RNA sequence can be

compared by converting U's to T's. The result of said global sequence alignment is in percent identity. Preferred parameters used in a FASTDB alignment of DNA sequences to calculate percent identiy are: Matrix=Unitary, k-tuple=4, Mismatch Penalty=1, Joining Penalty=30, Randomization Group Length=0, Cutoff Score=1, Gap Penalty=5, Gap Size Penalty 0.05, Window Size=500 or the lenght of the subject nucleotide sequence, whichever is shorter.

If the subject sequence is shorter than the query sequence because of 5' or 3' deletions, not because of internal deletions, a manual correction must be made to the results. This is because the FASTDB program does not account for 5' and 3' truncations of the subject sequence when calculating percent identity. For subject sequences truncated at the 5' or 3' ends, relative to the query sequence, the percent identity is corrected by calculating the number of bases of the query sequence that are 5' and 3' of the subject sequence, which are not matched/aligned, as a percent of the total bases of the query sequence. Whether a nucleotide is matched/aligned is determined by results of the FASTDB sequence alignment. This percentage is then subtracted from the percent identity, calculated by the above FASTDB program using the specified parameters, to arrive at a final percent identity score. This corrected score is what is used for the purposes of the present invention. Only bases outside the 5' and 3' bases of the subject sequence, as displayed by the FASTDB alignment, which are not matched/aligned with the query sequence, are calculated for the purposes of manually adjusting the percent identity score.

For example, a 90 base subject sequence is aligned to a 100 base query sequence to determine percent identity. The deletions occur at the 5' end of the subject sequence and therefore, the FASTDB alignment does not show a matched/alignment of the first 10 bases at 5' end. The 10 unpaired bases represent 10% of the sequence (number of bases at the 5' and 3' ends not matched/total number of bases in the query sequence) so 10% is subtracted from the percent identity score calculated by the FASTDB program. If the remaining 90 bases were perfectly matched the final percent identity would be 90%. In another example, a 90 base subject sequence is compared with a 100 base query sequence. This time the deletions are internal deletions so that there are no bases on the 5' or 3' of the subject sequence which are not matched/aligned with the query. In this case the percent identity calculated by FASTDB is not manually corrected. Once again, only bases 5' and 3' of the subject sequence which are not matched/aligned with the query sequence are manually corrected for. No other

manual corrections are to made for the purposes of the present invention.

By a polypeptide having an amino acid sequence at least, for example, 95% "identical" to a query amino acid sequence of the present invention, it is intended that the amino acid sequence of the subject polypeptide is identical to the query sequence except that the subject polypeptide sequence may include up to five amino acid alterations per each 100 amino acids of the query amino acid sequence. In other words, to obtain a polypeptide having an amino acid sequence at least 95% identical to a query amino acid sequence, up to 5% of the amino acid residues in the subject sequence may be inserted, deleted, (indels) or substituted with another amino acid. These alterations of the reference sequence may occur at the amino or carboxy terminal positions of the reference amino acid sequence or anywhere between those terminal positions, interspersed either individually among residues in the reference sequence or in one or more contiguous groups within the reference sequence.

As a practical matter, whether any particular polypeptide is at least 80%, 85%, 90%, 95%, 96%, 97%, 98% or 99% identical to, for instance, the amino acid sequence in SEQ ID NO:Y or a fragment thereof, the amino acid sequence encoded by the nucleotide sequence in SEQ ID NO:X or a fragment thereof, or the amino acid sequence encoded by the cDNA in the related cDNA clone contained in a deposited library, or a fragment thereof, can be determined conventionally using known computer programs. A preferred method for determing the best overall match between a query sequence (a sequence of the present invention) and a subject sequence, also referred to as a global sequence alignment, can be determined using the FASTDB computer program based on the algorithm of Brutlag et al. (Comp. App. Biosci.6:237- 245(1990)). In a sequence alignment the query and subject sequences are either both nucleotide sequences or both amino acid sequences. The result of said global sequence alignment is in percent identity. Preferred parameters used in a FASTDB amino acid alignment are: Matrix=PAM 0, k-tuple=2, Mismatch Penalty=1, Joining Penalty=20, Randomization Group Length=0, Cutoff Score=1, Window Size=sequence length, Gap Penalty=5, Gap Size Penalty=0.05, Window Size=500 or the length of the subject amino acid sequence, whichever is shorter.

If the subject sequence is shorter than the query sequence due to N- or C-terminal deletions, not because of internal deletions, a manual correction must be made to the results. This is because the FASTDB program does not account for N- and C-terminal truncations of the subject sequence when calculating global percent identity. For subject sequences

truncated at the N- and C-termini. relative to the query sequence. the percent identity is corrected by calculating the number of residues of the query sequence that are N- and C-terminal of the subject sequence, which are not matched/aligned with a corresponding subject residue. as a percent of the total bases of the query sequence. Whether a residue is matched/aligned is determined by results of the FASTDB sequence alignment. This percentage is then subtracted from the percent identity, calculated by the above FASTDB program using the specified parameters, to arrive at a final percent identity score. This final percent identity score is what is used for the purposes of the present invention. Only residues to the N- and C-termini of the subject sequence, which are not matched/aligned with the query sequence. are considered for the purposes of manually adjusting the percent identity score. That is. only query residue positions outside the farthest N- and C- terminal residues of the subject sequence.

For example, a 90 amino acid residue subject sequence is aligned with a 100 residue query sequence to determine percent identity. The deletion occurs at the N-terminus of the subject sequence and therefore, the FASTDB alignment does not show a matching/alignment of the first 10 residues at the N-terminus. The 10 unpaired residues represent 10% of the sequence (number of residues at the N- and C- termini not matched/total number of residues in the query sequence) so 10% is subtracted from the percent identity score calculated by the FASTDB program. If the remaining 90 residues were perfectly matched the final percent identity would be 90%. In another example, a 90 residue subject sequence is compared with a 100 residue query sequence. This time the deletions are internal deletions so there are no residues at the N- or C-termini of the subject sequence which are not matched/aligned with the query. In this case the percent identity calculated by FASTDB is not manually corrected. Once again, only residue positions outside the N- and C-terminal ends of the subject sequence, as displayed in the FASTDB alignment, which are not matched/aligned with the query sequence are manually corrected for. No other manual corrections are to made for the purposes of the present invention.

The variants may contain alterations in the coding regions, non-coding regions, or both. Especially preferred are polynucleotide variants containing alterations which produce silent substitutions, additions, or deletions, but do not alter the properties or activities of the encoded polypeptide. Nucleotide variants produced by silent substitutions due to the degeneracy of the genetic code are preferred. Moreover, variants in which less than 50, less

than 40. less than 30. less than 20. less than 10. or 5-50. 5-25. 5-10. 1-5. or 1-2 amino acids are substituted. deleted. or added in any combination are also preferred. Polynucleotide variants can be produced for a variety of reasons. e.g.. to optimize codon expression for a particular host (change codons in the human mRNA to those preferred by a bacterial host such as E. coli).

Naturally occurring variants are called "allelic variants." and refer to one of several alternate forms of a gene occupying a given locus on a chromosome of an organism. (Genes II, Lewin, B., ed., John Wiley & Sons, New York (1985).) These allelic variants can vary at either the polynucleotide and/or polypeptide level and are included in the present invention. Alternatively, non-naturally occurring variants may be produced by mutagenesis techniques or by direct synthesis.

Using known methods of protein engineering and recombinant DNA technology, variants may be generated to improve or alter the characteristics of the polypeptides of the present invention. For instance, as discussed herein. one or more amino acids can be deleted from the N-terminus or C-terminus of the polypeptide of the present invention without substantial loss of biological function. The authors of Ron et al., J. Biol. Chem. 268: 2984-2988 (1993), reported variant KGF proteins having heparin binding activity even after deleting 3, 8, or 27 amino-terminal amino acid residues. Similarly, Interferon gamma exhibited up to ten times higher activity after deleting 8-10 amino acid residues from the carboxy terminus of this protein. (Dobeli et al., J. Biotechnology 7:199-216 (1988).)

Moreover, ample evidence demonstrates that variants often retain a biological activity similar to that of the naturally occurring protein. For example, Gayle and coworkers (J. Biol. Chem 268:22105-22111 (1993)) conducted extensive mutational analysis of human cytokine IL-1a. They used random mutagenesis to generate over 3,500 individual IL-1a mutants that averaged 2.5 amino acid changes per variant over the entire length of the molecule. Multiple mutations were examined at every possible amino acid position. The investigators found that "[m]ost of the molecule could be altered with little effect on either [binding or biological activity]." (See, Abstract.) In fact, only 23 unique amino acid sequences, out of more than 3,500 nucleotide sequences examined, produced a protein that significantly differed in activity from wild-type.

Furthermore, as discussed herein, even if deleting one or more amino acids from the N-terminus or C-terminus of a polypeptide results in modification or loss of one or more

biological functions. other biological activities may still be retained. For example. the ability of a deletion variant to induce and/or to bind antibodies which recognize the secreted form will likely be retained when less than the majority of the residues of the secreted form are removed from the N-terminus or C-terminus. Whether a particular polypeptide lacking N- or C-terminal residues of a protein retains such immunogenic activities can readily be determined by routine methods described herein and otherwise known in the art.

Thus. the invention further includes polypeptide variants which show a functional activity (e.g., biological activity) of the polypeptide of the invention of which they are a variant. Such variants include deletions, insertions, inversions, repeats. and substitutions selected according to general rules known in the art so as have little effect on activity.

The present application is directed to nucleic acid molecules at least 80%. 85%, 90%, 95%, 96%. 97%, 98%. 99% or 100% identical to the nucleic acid sequences disclosed herein or fragments thereof. (e.g., including but not limited to fragments encoding a polypeptide having the amino acid sequence of an N and/or C terminal deletion), irrespective of whether they encode a polypeptide having functional activity. This is because even where a particular nucleic acid molecule does not encode a polypeptide having functional activity, one of skill in the art would still know how to use the nucleic acid molecule, for instance, as a hybridization probe or a polymerase chain reaction (PCR) primer. Uses of the nucleic acid molecules of the present invention that do not encode a polypeptide having functional activity include, inter alia, (1) isolating a gene or allelic or splice variants thereof in a cDNA library; (2) in situ hybridization (e.g., "FISH") to metaphase chromosomal spreads to provide precise chromosomal location of the gene, as described in Verma et al., Human Chromosomes: A Manual of Basic Techniques, Pergamon Press, New York (1988); and (3) Northern Blot analysis for detecting mRNA expression in specific tissues.

Preferred, however, are nucleic acid molecules having sequences at least 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99% or 100% identical to the nucleic acid sequences disclosed herein, which do, in fact, encode a polypeptide having a functional activity of a polypeptide of the invention.

Of course, due to the degeneracy of the genetic code, one of ordinary skill in the art will immediately recognize that a large number of the nucleic acid molecules having a sequence at least 80%, 85%, 90%, 95%. 96%, 97%, 98%, 99%, or 100% identical to, for example. the nucleic acid sequence of the cDNA in the related cDNA clone contained in a

deposited library. the nucleic acid sequence referred to in Table 1 (SEQ ID NO:X), or fragments thereof. will encode polypeptides "having functional activity." In fact. since degenerate variants of any of these nucleotide sequences all encode the same polypeptide, in many instances. this will be clear to the skilled artisan even without performing the above described comparison assay. It will be further recognized in the art that, for such nucleic acid molecules that are not degenerate variants. a reasonable number will also encode a polypeptide having functional activity. This is because the skilled artisan is fully aware of amino acid substitutions that are either less likely or not likely to significantly effect protein function (e.g., replacing one aliphatic amino acid with a second aliphatic amino acid), as further described below.

For example, guidance concerning how to make phenotypically silent amino acid substitutions is provided in Bowie et al., "Deciphering the Message in Protein Sequences: Tolerance to Amino Acid Substitutions," Science 247:1306-1310 (1990), wherein the authors indicate that there are two main strategies for studying the tolerance of an amino acid sequence to change.

The first strategy exploits the tolerance of amino acid substitutions by natural selection during the process of evolution. By comparing amino acid sequences in different species, conserved amino acids can be identified. These conserved amino acids are likely important for protein function. In contrast, the amino acid positions where substitutions have been tolerated by natural selection indicates that these positions are not critical for protein function. Thus, positions tolerating amino acid substitution could be modified while still maintaining biological activity of the protein.

The second strategy uses genetic engineering to introduce amino acid changes at specific positions of a cloned gene to identify regions critical for protein function. For example, site directed mutagenesis or alanine-scanning mutagenesis (introduction of single alanine mutations at every residue in the molecule) can be used. (Cunningham and Wells, Science 244:1081-1085 (1989).) The resulting mutant molecules can then be tested for biological activity.

As the authors state, these two strategies have revealed that proteins are surprisingly tolerant of amino acid substitutions. The authors further indicate which amino acid changes are likely to be permissive at certain amino acid positions in the protein. For example, most buried (within the tertiary structure of the protein) amino acid residues require nonpolar side

chains. whereas few features of surface side chains are generally conserved. Moreover, tolerated conservative amino acid substitutions involve replacement of the aliphatic or hydrophobic amino acids Ala, Val. Leu and Ile: replacement of the hydroxyl residues Ser and Thr: replacement of the acidic residues Asp and Glu; replacement of the amide residues Asn and Gln. replacement of the basic residues Lys, Arg, and His; replacement of the aromatic residues Phe. Tyr, and Trp, and replacement of the small-sized amino acids Ala, Ser, Thr, Met, and Gly. Besides conservative amino acid substitution, variants of the present invention include (i) substitutions with one or more of the non-conserved amino acid residues. where the substituted amino acid residues may or may not be one encoded by the genetic code. or (ii) substitution with one or more of amino acid residues having a substituent group, or (iii) fusion of the mature polypeptide with another compound. such as a compound to increase the stability and/or solubility of the polypeptide (for example, polyethylene glycol), or (iv) fusion of the polypeptide with additional amino acids, such as, for example, an IgG Fc fusion region peptide, or leader or secretory sequence, or a sequence facilitating purification. Such variant polypeptides are deemed to be within the scope of those skilled in the art from the teachings herein.

For example, polypeptide variants containing amino acid substitutions of charged amino acids with other charged or neutral amino acids may produce proteins with improved characteristics, such as less aggregation. Aggregation of pharmaceutical formulations both reduces activity and increases clearance due to the aggregate's immunogenic activity. (Pinckard et al., Clin. Exp. Immunol. 2:331-340 (1967); Robbins et al., Diabetes 36: 838-845 (1987); Cleland et al., Crit. Rev. Therapeutic Drug Carrier Systems 10:307-377 (1993).)

A further embodiment of the invention relates to a polypeptide which comprises the amino acid sequence of a polypeptide having an amino acid sequence which contains at least one amino acid substitution, but not more than 50 amino acid substitutions, even more preferably, not more than 40 amino acid substitutions, still more preferably, not more than 30 amino acid substitutions, and still even more preferably, not more than 20 amino acid substitutions. Of course it is highly preferable for a polypeptide to have an amino acid sequence which comprises the amino acid sequence of a polypeptide of SEQ ID NO:Y, an amino acid sequence encoded by SEQ ID NO:X. and/or the amino acid sequence encoded by the cDNA in the related cDNA clone contained in a deposited library which contains, in order of ever-increasing preference, at least one, but not more than 10, 9, 8, 7, 6, 5, 4, 3, 2 or 1

amino acid substitutions. In specific embodiments, the number of additions, substitutions, and/or deletions in the amino acid sequence of SEQ ID NO:Y or fragments thereof (e.g., the mature form and/or other fragments described herein), an amino acid sequence encoded by SEQ ID NO:X or fragments thereof, and/or the amino acid sequence encoded by the cDNA in the related cDNA clone contained in a deposited library or fragments thereof, is 1-5, 5-10, 5-25, 5-50, 10-50 or 50-150, conservative amino acid substitutions are preferable.

Polynucleotide and Polypeptide Fragments

The present invention is also directed to polynucleotide fragments of the prostate and prostate cancer polynucleotides (nucleic acids) of the invention. In the present invention, a "polynucleotide fragment" refers, for example, to a polynucleotide having a nucleic acid sequence which: is a portion of the cDNA contained in a depostied cDNA clone; or is a portion of a polynucleotide sequence encoding the polypeptide encoded by the cDNA contained in a deposited cDNA clone; or is a portion of the polynucleotide sequence in SEQ ID NO:X or the complementary strand thereto; or is a polynucleotide sequence encoding a portion of the polypeptide of SEQ ID NO:Y; or is a polynucleotide sequence encoding a portion of a polypeptide encoded by SEQ ID NO:X or the complementary strand thereto. The nucleotide fragments of the invention are preferably at least about 15 nt, and more preferably at least about 20 nt, still more preferably at least about 30 nt, and even more preferably, at least about 40 nt, at least about 50 nt, at least about 75 nt, at least about 100 nt, at least about 125 nt or at least about 150 nt in length. A fragment "at least 20 nt in length," for example, is intended to include 20 or more contiguous bases from, for example, the sequence contained in the cDNA in a related cDNA clone contained in a deposited library, the nucleotide sequence shown in SEQ ID NO:X or the complementary stand thereto. In this context "about" includes the particularly recited value or a value larger or smaller by several (5, 4, 3, 2, or 1) nucleotides. These nucleotide fragments have uses that include, but are not limited to, as diagnostic probes and primers as discussed herein. Of course, larger fragments (e.g., at least 150, 175, 200, 250, 500, 600, 1000, or 2000 nucleotides in length) are also encompassed by the invention.

Moreover, representative examples of polynucleotide fragments of the invention, include, for example, fragments comprising, or alternatively consisting of, a sequence from about nucleotide number 1-50, 51-100, 101-150, 151-200, 201-250, 251-300, 301-350, 351-

400. 401-450. 451-500. 501-550. 551-600, 651-700,701- 750. 751-800, 800-850. 851-900, 901-950. 951-1000, 1001-1050. 1051-1100, 1101-1150. 1151-1200. 1201-1250. 1251-1300, 1301-1350. 1351-1400. 1401-1450, 1451-1500. 1501-1550, 1551-1600, 1601-1650. 1651-1700. 1701-1750. 1751-1800. 1801-1850, 1851-1900, 1901-1950, 1951-2000. 2001-2050, 2051-2100. 2101-2150. 2151-2200, 2201-2250, 2251-2300, 2301-2350, 2351-2400, 2401-2450, 2451-2500, 2501-2550, 2551-2600, 2601-2650, 2651-2700, 2701-2750, 2751-2800, 2801-2850. 2851-2900, 2901-2950, 2951-3000, 3001-3050. 3051-3100, 3101-3150, 3151-3200, 3201-3250; 3251-3300, 3301-3350, 3351-3400, 3401-3450, 3451-3500, 3501-3550, and 3551 to the end of SEQ ID NO:X, or the complementary strand thereto. In this context "about" includes the particularly recited range or a range larger or smaller by several (5, 4, 3, 2, or 1) nucleotides. at either terminus or at both termini. Preferably, these fragments encode a polypeptide which has a functional activity (e.g., biological activity) of the polypeptide encoded by the polynucleotide of which the sequence is a portion. More preferably, these fragments can be used as probes or primers as discussed herein. Polynucleotides which hybridize to one or more of these nucleic acid molecules under stringent hybridization conditions or alternatively, under lower stringency conditions, are also encompassed by the invention, as are polypeptides encoded by these polynucleotides or fragments.

Moreover, representative examples of polynucleotide fragments of the invention, include, for example, fragments comprising, or alternatively consisting of, a sequence from about nucleotide number 1-50, 51-100, 101-150, 151-200, 201-250, 251-300, 301-350, 351-400, 401-450, 451-500, 501-550, 551-600, 651-700,701- 750, 751-800, 800-850, 851-900, 901-950, 951-1000, 1001-1050, 1051-1100, 1101-1150, 1151-1200, 1201-1250, 1251-1300, 1301-1350, 1351-1400, 1401-1450, 1451-1500, 1501-1550, 1551-1600, 1601-1650, 1651-1700, 1701-1750, 1751-1800, 1801-1850, 1851-1900, 1901-1950, 1951-2000, 2001-2050, 2051-2100, 2101-2150, 2151-2200, 2201-2250, 2251-2300, 2301-2350, 2351-2400, 2401-2450, 2451-2500, 2501-2550, 2551-2600, 2601-2650, 2651-2700, 2701-2750, 2751-2800, 2801-2850, 2851-2900, 2901-2950, 2951-3000, 3001-3050, 3051-3100, 3101-3150, 3151-3200, 3201-3250, 3251-3300, 3301-3350, 3351-3400, 3401-3450, 3451-3500, 3501-3550, and 3551 to the end of the cDNA nucleotide sequence contained in the deposited cDNA clone, or the complementary strand thereto. In this context "about" includes the particularly recited range, or a range larger or smaller by several (5, 4, 3, 2, or 1) nucleotides. at either terminus or at both termini. Preferably, these fragments encode a polypeptide which has a

functional activity (e.g., biological activity) of the polypeptide encoded by the cDNA nucleotide sequence contained in the deposited cDNA clone. More preferably, these fragments can be used as probes or primers as discussed herein. Polynucleotides which hybridize to one or more of these fragments under stringent hybridization conditions or alternatively, under lower stringency conditions, are also encompassed by the invention, as are polypeptides encoded by these polynucleotides or fragments.

In the present invention, a "polypeptide fragment" refers to an amino acid sequence which is a portion of that contained in SEQ ID NO:Y, a portion of an amino acid sequence encoded by the polynucleotide sequence of SEQ ID NO:X, and/or encoded by the cDNA contained in the related cDNA clone contained in a deposited library. Protein (polypeptide) fragments may be "free-standing," or comprised within a larger polypeptide of which the fragment forms a part or region, most preferably as a single continuous region. Representative examples of polypeptide fragments of the invention, include, for example, fragments comprising, or alternatively consisting of, an amino acid sequence from about amino acid number 1-20, 21-40, 41-60, 61-80, 81-100, 102-120, 121-140, 141-160, 161-180, 181-200, 201-220, 221-240, 241-260, 261-280, 281-300, 301-320, 321-340, 341-360, 361-380, 381-400, 401-420, 421-440, 441-460, 461-480, 481-500, 501-520, 521-540, 541-560, 561-580, 581-600, 601-620, 621-640, 641-660, 661-680, 681-700, 701-720, 721-740, 741-760, 761-780, 781-800, 801-820, 821-840, 841-860, 861-880, 881-900, 901-920, 921-940, 941-960, 961-980, 981-1000, 1001-1020, 1021-1040, 1041-1060, 1061-1080, 1081-1100, 1101-1120, 1121-1140, 1141-1160, 1161-1180, and 1181 to the end of SEQ ID NO:Y. Moreover, polypeptide fragments of the invention may be at least about 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 100, 110, 120, 130, 140, or 150 amino acids in length. In this context "about" includes the particularly recited ranges or values, or ranges or values larger or smaller by several (5, 4, 3, 2, or 1) amino acids, at either terminus or at both termini. Polynucleotides encoding these polypeptide fragments are also encompassed by the invention.

Even if deletion of one or more amino acids from the N-terminus of a protein results in modification of loss of one or more biological functions of the protein, other functional activities (e.g., biological activities, ability to multimerize, ability to bind a ligand) may still be retained. For example, the ability of shortened muteins to induce and/or bind to antibodies which recognize the complete or mature forms of the polypeptides generally will be retained

when less than the majority of the residues of the complete or mature polypeptide are removed from the N-terminus. Whether a particular polypeptide lacking N-terminal residues of a complete polypeptide retains such immunologic activities can readily be determined by routine methods described herein and otherwise known in the art. It is not unlikely that a mutein with a large number of deleted N-terminal amino acid residues may retain some biological or immunogenic activities. In fact, peptides composed of as few as six amino acid residues may often evoke an immune response.

Accordingly, polypeptide fragments of the invention include the secreted protein as well as the mature form. Further preferred polypeptide fragments include the secreted protein or the mature form having a continuous series of deleted residues from the amino or the carboxy terminus, or both. For example, any number of amino acids, ranging from 1-60, can be deleted from the amino terminus of either the secreted polypeptide or the mature form. Similarly, any number of amino acids, ranging from 1-30, can be deleted from the carboxy terminus of the secreted protein or mature form. Furthermore, any combination of the above amino and carboxy terminus deletions are preferred. Similarly, polynucleotides encoding these polypeptide fragments are also preferred.

The present invention further provides polypeptides having one or more residues deleted from the amino terminus of the amino acid sequence of a polypeptide disclosed herein (e.g., a polypeptide of SEQ ID NO:Y, a polypeptide encoded by the polynucleotide sequence contained in SEQ ID NO:X, and/or a polypeptide encoded by the cDNA contained in the related cDNA clone contained in a deposited library). In particular, N-terminal deletions may be described by the general formula m-q, where q is a whole integer representing the total number of amino acid residues in a polypeptide of the invention (e.g., the polypeptide disclosed in SEQ ID NO:Y), and m is defined as any integer ranging from 2 to q-6. Polynucleotides encoding these polypeptides are also encompassed by the invention.

Also as mentioned above, even if deletion of one or more amino acids from the C-terminus of a protein results in modification of loss of one or more biological functions of the protein, other functional activities (e.g., biological activities, ability to multimerize, ability to bind a ligand) may still be retained. For example the ability of the shortened mutein to induce and/or bind to antibodies which recognize the complete or mature forms of the polypeptide generally will be retained when less than the majority of the residues of the complete or mature polypeptide are removed from the C-terminus. Whether a particular

polypeptide lacking C-terminal residues of a complete polypeptide retains such immunologic activities can readily be determined by routine methods described herein and otherwise known in the art. It is not unlikely that a mutein with a large number of deleted C-terminal amino acid residues may retain some biological or immunogenic activities. In fact, peptides composed of as few as six amino acid residues may often evoke an immune response.

Accordingly, the present invention further provides polypeptides having one or more residues from the carboxy terminus of the amino acid sequence of a polypeptide disclosed herein (e.g., a polypeptide of SEQ ID NO:Y, a polypeptide encoded by the polynucleotide sequence contained in SEQ ID NO:X, and/or a polypeptide encoded by the cDNA contained in deposited cDNA clone referenced in Table 1). In particular, C-terminal deletions may be described by the general formula 1-n, where n is any whole integer ranging from 6 to q-1, and where n corresponds to the position of an amino acid residue in a polypeptide of the invention. Polynucleotides encoding these polypeptides are also encompassed by the invention.

In addition, any of the above described N- or C-terminal deletions can be combined to produce a N- and C-terminal deleted polypeptide. The invention also provides polypeptides having one or more amino acids deleted from both the amino and the carboxyl termini, which may be described generally as having residues m-n of a polypeptide encoded by SEQ ID NO:X (e.g., including, but not limited to, the preferred polypeptide disclosed as SEQ ID NO:Y), and/or the cDNA in the related cDNA clone contained in a deposited library, where n and m are integers as described above. Polynucleotides encoding these polypeptides are also encompassed by the invention.

Any polypeptide sequence contained in the polypeptide of SEQ ID NO:Y, encoded by the polynucleotide sequences set forth as SEQ ID NO:X, or encoded by the cDNA in the related cDNA clone contained in a deposited library may be analyzed to determine certain preferred regions of the polypeptide. For example, the amino acid sequence of a polypeptide encoded by a polynucleotide sequence of SEQ ID NO:X, or the cDNA in a deposited cDNA clone may be analyzed using the default parameters of the DNASTAR computer algorithm (DNASTAR, Inc., 1228 S. Park St., Madison, WI 53715 USA; http://www.dnastar.com/).

Polypeptide regions that may be routinely obtained using the DNASTAR computer algorithm include, but are not limited to, Garnier-Robson alpha-regions, beta-regions, turn-regions, and coil-regions, Chou-Fasman alpha-regions, beta-regions, and turn-regions,

Kyte-Doolittle hydrophilic regions and hydrophobic regions. Eisenberg alpha- and beta-amphipathic regions. Karplus-Schulz flexible regions. Emini surface-forming regions and Jameson-Wolf regions of high antigenic index. Among highly preferred polynucleotides of the invention in this regard are those that encode polypeptides comprising regions that combine several structural features. such as several (e.g., 1, 2. 3 or 4) of the features set out above.

Additionally, Kyte-Doolittle hydrophilic regions and hydrophobic regions. Emini surface-forming regions, and Jameson-Wolf regions of high antigenic index (i.e., containing four or more contiguous amino acids having an antigenic index of greater than or equal to 1.5, as identified using the default parameters of the Jameson-Wolf program) can routinely be used to determine polypeptide regions that exhibit a high degree of potential for antigenicity. Regions of high antigenicity are determined from data by DNASTAR analysis by choosing values which represent regions of the polypeptide which are likely to be exposed on the surface of the polypeptide in an environment in which antigen recognition may occur in the process of initiation of an immune response.

Preferred polypeptide fragments of the invention are fragments comprising, or alternatively consisting of, an amino acid sequence that displays a functional activity of the polypeptide sequence of which the amino acid sequence is a fragment.

By a polypeptide demonstrating a "functional activity" is meant, a polypeptide capable of displaying one or more known functional activities associated with a full-length (complete) protein of the invention. Such functional activities include, but are not limited to, biological activity, antigenicity [ability to bind (or compete with a polypeptide for binding) to an anti-polypeptide antibody], immunogenicity (ability to generate antibody which binds to a specific polypeptide of the invention), ability to form multimers with polypeptides of the invention, and ability to bind to a receptor or ligand for a polypeptide.

Other preferred polypeptide fragments are biologically active fragments. Biologically active fragments are those exhibiting activity similar, but not necessarily identical, to an activity of the polypeptide of the present invention. The biological activity of the fragments may include an improved desired activity, or a decreased undesirable activity.

In preferred embodiments, polypeptides of the invention comprise, or alternatively consist of, one, two, three, four, five or more of the antigenic fragments of the polypeptide of

SEQ ID NO:Y. or portions thereof. Polynucleotides encoding these polypeptides are also encompassed by the invention.

Table 4.

Sequence/ Contig ID	Epitopes
574130	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 941 as residues: Ala-10 to Asp-18. Asp-20 to Cys-27. Cys-44 to Gly-52. Pro-57 to Ser-62. Pro-65 to His-72. Gln-88 to Asn-94. Pro-118 to Thr-127. Pro-129 to Thr-143. Tyr-156 to Tyr-165. Pro-167 to Leu-172. Cys-180 to Asp-185.
637706	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 942 as residues: Arg-1 to Glu-6. Lys-11 to Val-24. Pro-27 to Gln-36. Glu-49 to Gly-54. His-59 to Gly-73. Thr-86 to Ala-97. Pro-104 to Gly-113. Asp-137 to Asp-160. Arg-177 to Asn-195. Leu-203 to Asn-212. Asn-219 to Thr-231. Lys-238 to Tyr-247. Glu-249 to Asn-254. Met-269 to Asp-303. Ser-328 to Ser-336.
684310	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 944 as residues: Ala-13 to Arg-20. Glu-25 to Arg-40.
731016	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 945 as residues: Gly-13 to Leu-20. Gly-40 to Ala-45.
827771	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 946 as residues: Ala-11 to Glu-16.
828193	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 947 as residues: Gly-1 to Gly-9. Ala-15 to Ala-21.
828194	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 948 as residues: Pro-45 to Trp-53.
828199	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 949 as residues: Gly-38 to Ser-44. Leu-123 to Trp-138. His-149 to Pro-154.
828221	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 950 as residues: Lys-32 to Leu-41. Arg-119 to Tyr-124. Pro-197 to Arg-204. Asp-236 to Lys-242. Ala-290 to Tyr-296. Thr-320 to Arg-331. Asp-337 to Val-343. His-358 to Gly-368. Thr-419 to Gln-424.
828235	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 951 as residues: Pro-74 to Arg-82.
828236	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 952 as residues: Lys-10 to Gly-15. Pro-22 to Ser-27. Lys-38 to Glu-63. Lys-74 to Val-87. Met-89 to Glu-123. Lys-130 to Glu-196. Val-201 to Ala-207. Arg-251 to Lys-256. Glu-271 to Arg-279. Pro-317 to Asn-327. Lys-382 to Gln-390. Tyr-409 to Glu-415.
828237	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 953 as residues: Ala-6 to Arg-20, Glu-33 to Lys-40, Gln-45 to Leu-50, Arg-52 to Gln-72. Leu-78 to Gln-94, Gln-105 to Gln-114.
828242	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 955 as residues: Thr-1 to Trp-9, Pro-26 to Ala-32. Gly-58 to Arg-68. Gln-73 to Thr-99, Ala-191 to Asp-196. Glu-225 to Glu-234.
828248	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 957 as residues: Lys-21 to Glu-27. Thr-84 to Asp-89. His-103 to Val-109.
828250	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 958 as residues: Glu-106 to Ser-111.
828256	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 959 as residues: Gly-44 to Trp-49. Pro-90 to Ser-95. Tyr-133 to Lys-142. Trp-223 to Gly-242.
828267	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 960 as residues: Pro-1 to His-11. Arg-36 to Gly-52. Arg-62 to Gly-73. Gly-85 to Leu-96. Pro-112 to Gly-117. Ser-130 to Gly-138.
828272	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 962 as residues: Glu-1 to Gly-13. Ser-58 to Phe-65. Thr-118 to Gly-131. Gly-139 to Arg-157.
828273	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 963 as residues: Ser-1 to Pro-6. Gln-38 to Arg-43.
828290	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 964 as residues: Trp-61 to Cys-67.

828326	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 965 as residues: Arg-2 to Gln-11. Ala-17 to Ser-24. Arg-45 to Arg-58. Pro-60 to Gly-67. Ser-86 to Thr-92. Asn-143 to Leu-158.
828397	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 966 as residues: Arg-18 to Arg-33.
828405	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 967 as residues: Ser-50 to Leu-57. Ser-88 to Ser-99. Glu-104 to Val-112. Glu-122 to Val-127. Ile-152 to Asp-157.
828461	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 968 as residues: Ala-3 to Ala-16. Leu-25 to Pro-44. Ser-82 to Leu-88. Pro-91 to Arg-99, Pro-110 to Glu-118. Ile-120 to Lys-136. Cys-142 to Leu-149. Glu-156 to Leu-167, Arg-169 to Arg-180, Gly-197 to Pro-212. Arg-269 to Leu-283.
828482	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 969 as residues: Glu-1 to Ser-7.
828491	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 971 as residues: Arg-42 to Asn-48.
828492	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 972 as residues: Pro-28 to Lys-33. Arg-41 to Glu-47.
828494	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 973 as residues: Phe-24 to Val-32. Arg-49 to Val-55. Tyr-59 to Glu-68. Leu-72 to Asn-80.
828496	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 974 as residues: Gly-1 to Arg-8. Ser-17 to Arg-22. Arg-41 to Leu-47, Lys-49 to Lys-57, Leu-66 to Arg-73. Glu-94 to Thr-104. Arg-117 to Leu-126. Lys-184 to Asn-193. Glu-197 to Arg-216.
828498	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 975 as residues: Glu-62 to Leu-68. Ile-104 to Ser-111.
828504	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 976 as residues: Ser-14 to Pro-21.
828512	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 978 as residues: Asn-26 to Gln-36, Val-48 to Asp-62, Lys-112 to Ser-123. Val-127 to Phe-132. Phe-139 to Asp-151. Val-158 to Glu-180.
828516	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 979 as residues: Gly-14 to Gly-20. Ala-22 to Ala-33. Arg-83 to Thr-88. Arg-100 to Leu-105. Lys-130 to Lys-141.
828519	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 980 as residues: Gly-7 to Pro-13. His-20 to Ala-25.
828521	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 981 as residues: Asn-13 to His-19. Ser-37 to Arg-45.
828522	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 982 as residues: Lys-12 to Glu-19. Glu-38 to Gly-43. Pro-82 to Lys-93.
828525	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 983 as residues: Pro-23 to Pro-30. Ala-59 to Ser-64. Pro-84 to Thr-93. Pro-135 to Gly-140.
828529	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 984 as residues: Ser-15 to Gln-20. Gln-92 to Phe-113. Thr-141 to Gly-146. Val-153 to Thr-158.
828530	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 985 as residues: Pro-5 to Gln-15. Lys-23 to Leu-32.
828536	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 986 as residues: His-28 to Glu-34.
828537	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 987 as residues: Ile-28 to Leu-33. Gln-42 to Ser-52. Ser-54 to Trp-59.
828539	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 988 as residues: Ala-1 to Leu-9. Ser-19 to Thr-31.
828540	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 989 as residues: Arg-1 to Lys-12. Gly-17 to Ile-23.
828543	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 991 as residues: Ala-13 to Gln-20. Asp-33 to Asn-39.
828544	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 992 as residues: Val-15 to Asp-21.
828551	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 995 as residues:

	Met-12 to Pro-17.
828560	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 998 as residues: Val-8 to Arg-17.
828561	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 999 as residues: Asn-7 to Gly-20. Thr-32 to Tyr-37. Arg-57 to Gly-66.
828565	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1000 as residues: Arg-1 to Asn-18.
828566	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1001 as residues: Arg-41 to His-50. Lys-52 to Thr-60.
828567	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1002 as residues: Gln-7 to Cys-12. Pro-20 to Lys-30.
828568	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1003 as residues: Pro-10 to Glu-20. Asn-29 to Trp-37. Ala-44 to Arg-51. Gln-69 to Gly-79.
828570	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1005 as residues: Ser-16 to Leu-24.
828571	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1006 as residues: Leu-1 to Gln-17.
828574	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1007 as residues: Pro-117 to Lys-134. Gln-136 to Trp-143.
828575	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1008 as residues: Lys-6 to Ala-13.
828578	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1010 as residues: Gly-72 to Asp-81. Cys-89 to Gly-100. Lys-107 to Arg-114. Lys-119 to Gln-126, Arg-140 to Ser-160.
828580	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1011 as residues: Pro-1 to Ala-7. Lys-54 to Gln-68. Leu-81 to Gln-93.
828581	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1012 as residues: Glu-13 to Ser-21. Glu-31 to Glu-37. Lys-53 to Ala-60.
828583	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1013 as residues: Gln-1 to Gly-7. Thr-22 to Gly-31.
828585	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1014 as residues: Leu-28 to His-34.
828587	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1015 as residues: Gln-1 to Lys-8. Ser-25 to Phe-38. Thr-79 to Val-90. Arg-118 to Glu-125.
828592	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1017 as residues: Gln-12 to Gln-17. Arg-43 to Gln-49. Lys-62 to Lys-67. Glu-78 to Gly-83.
828594	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1019 as residues: Glu-9 to Gln-18.
828596	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1020 as residues: Thr-1 to His-8.
828597	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1021 as residues: Gln-12 to Trp-17. Asp-83 to Ile-97. Gln-99 to Asp-104. Thr-210 to Ser-216. Arg-279 to Thr-296.
828598	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1022 as residues: Thr-1 to Ser-7.
828601	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1023 as residues: Ile-1 to Trp-10, Thr-32 to Ser-38, Pro-49 to Gly-56, Ser-78 to Arg-83, Phe-113 to Arg-122, Leu-156 to Asp-173.
828605	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1024 as residues: Arg-6 to Pro-12.
828608	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1025 as residues: Arg-52 to Ile-59. Asp-65 to Phe-76. Lys-96 to Leu-102.
828609	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1026 as residues: Gly-29 to Gly-36. Lys-105 to Thr-112. Phe-134 to Asn-145. Pro-182 to Gly-190.
828610	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1027 as residues: Pro-49 to Asp-58. Lys-60 to Ile-66. Ser-68 to Glu-76. Val-95 to Asn-101. Lys-118 to Thr-124.
828617	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1028 as residues:

	Ser-14 to Arg-22. Leu-24 to Cys-30. Pro-35 to Gly-40.
828620	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1029 as residues: Leu-2 to Arg-10. Ala-57 to Lys-64. Lys-81 to Leu-88. Tyr-160 to Pro-169. Met-203 to Asp-216.
828623	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1032 as residues: His-38 to His-44.
828625	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1033 as residues: Ile-19 to Asn-28.
828635	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1035 as residues: Arg-3 to Arg-10.
828637	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1036 as residues: Asp-9 to Cys-15.
828639	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1037 as residues: Pro-13 to His-20.
828645	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1038 as residues: Glu-1 to Gly-10. Lys-18 to Arg-41. Ala-55 to Pro-65.
828648	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1039 as residues: Ala-12 to Asn-20. Pro-23 to Asn-28. Phe-47 to Val-52. Lys-88 to Gly-93. Tyr-113 to Asn-123.
828649	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1040 as residues: Pro-14 to Gln-29.
828651	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1041 as residues: Gly-2 to Lys-13.
828655	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1043 as residues: Val-13 to Trp-27.
828657	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1044 as residues: Glu-20 to Leu-30. Glu-79 to Gly-84. Asp-89 to Trp-96.
828660	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1045 as residues: Pro-37 to Thr-43.
828663	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1046 as residues: Ala-19 to Gly-24.
828666	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1047 as residues: His-54 to Gly-59.
828668	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1048 as residues: Pro-1 to Gly-12. Pro-30 to Leu-48.
828669	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1049 as residues: Pro-2 to Ser-7. Trp-27 to Lys-38.
828671	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1051 as residues: Asp-89 to Ile-94.
828672	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1052 as residues: Lys-16 to Ser-23.
828675	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1053 as residues: Lys-11 to His-16. Ala-26 to Ser-65.
828677	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1054 as residues: Pro-7 to Trp-13.
828678	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1055 as residues: Glu-188 to Arg-196.
828679	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1056 as residues: Asn-17 to Lys-23.
828680	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1057 as residues: Pro-7 to Glu-17. Ser-68 to Tyr-85. Ser-94 to Asn-101. Thr-122 to Arg-129. Ser-169 to Val-174.
828681	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1058 as residues: Asp-1 to Asp-19. Arg-27 to Leu-33.
828682	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1059 as residues: Pro-34 to Glu-39. Ala-41 to Gly-47. Glu-100 to Ser-111.
828683	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1060 as residues: Gly-7 to Val-14.
828686	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1061 as residues:

	Pro-15 to Glu-20. Gln-71 to Leu-84. Glu-86 to Ser-96. Glu-116 to Pro-121. Val-176 to Leu-196. Asn-216 to Ala-224.
828687	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1062 as residues: Glu-3 to Ala-13. Ile-22 to Ser-28.
828688	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1063 as residues: Asp-7 to Ala-15. Pro-34 to Ile-60. Gln-110 to Asn-117.
828689	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1064 as residues: Ser-74 to Met-96. Leu-108 to Trp-117, Gly-126 to Gly-131, Glu-161 to Asp-178. Lys-181 to Tyr-191. Arg-196 to Ser-202.
828692	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1065 as residues: Pro-73 to Thr-86. Ser-93 to Val-102, Ala-157 to Lys-162, Thr-169 to Lys-184. Asp-198 to Tyr-211.
828694	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1067 as residues: Thr-1 to Ala-10. Pro-18 to Arg-25. Ala-49 to Leu-56. Ser-104 to Arg-111.
828696	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1068 as residues: Ser-5 to Ser-10.
828699	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1070 as residues: Asp-7 to Val-17. Ala-21 to Ser-26.
828702	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1071 as residues: Val-14 to Gly-26. Ser-76 to His-87. Ile-127 to Phe-134. Pro-151 to Asn-157.
828703	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1072 as residues: Cys-58 to Ser-66.
828704	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1073 as residues: Thr-35 to Thr-42.
828706	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1074 as residues: Arg-1 to Glu-13.
828708	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1075 as residues: Asn-17 to Pro-27. Ser-46 to His-51. Leu-53 to Asp-60. Cys-62 to Ile-68.
828711	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1076 as residues: Asp-24 to Phe-31.
828712	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1077 as residues: Ser-44 to Lys-49. Glu-65 to Lys-76.
828713	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1078 as residues: Pro-1 to Asp-6. Arg-13 to Gly-26.
828714	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1079 as residues: Pro-24 to Glu-42. Gln-58 to Asp-64. Gln-80 to His-90. Pro-92 to Asp-103. Tyr-139 to Glu-153. Asp-162 to Asp-180. Glu-189 to Phe-200. Ser-203 to Gln-213, Glu-219 to Gly-224. Lys-227 to Ser-236, Pro-241 to Asn-260. Phe-275 to Ser-281. Phe-305 to Asn-314. Gln-319 to Tyr-329. Thr-341 to Ser-357. Pro-360 to Cys-365. Trp-384 to Phe-398. Gln-401 to Lys-410.
828718	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1081 as residues: Asp-70 to Leu-85. Ser-195 to Arg-205. Arg-262 to Ala-268. Asn-270 to Ala-277.
828728	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1084 as residues: Gly-12 to Val-19. Asp-38 to Gln-55. Gln-84 to Tyr-91. Gln-96 to Asp-102.
828730	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1085 as residues: Gly-142 to Arg-148. Ser-173 to Gln-178, Thr-202 to Ile-207. Leu-276 to Val-282, Pro-321 to Gly-353. Thr-355 to Glu-364. Glu-380 to Lys-385.
828732	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1086 as residues: Leu-8 to Lys-29. Leu-79 to Glu-86. Asn-106 to Trp-113.
828733	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1087 as residues: Lys-26 to Lys-33.
828735	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1088 as residues: Ser-10 to Pro-21. Ser-94 to Ala-111. Ala-125 to Met-142. Pro-144 to Gln-150. Asp-194 to Asn-201. Val-216 to Arg-243.
828740	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1091 as residues: Asn-12 to Leu-21. Leu-23 to Ser-28.
828742	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1092 as residues:

	Ser-149 to Leu-158.
828748	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1093 as residues: Pro-21 to Lys-31. Glu-46 to Thr-52. Cys-93 to Trp-100. Glu-144 to Gln-150, Gln-171 to Ser-180. Pro-205 to Trp-210. Ser-222 to Cys-228.
828752	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1095 as residues: Pro-23 to Gly-28. Ser-34 to Gly-39, Leu-44 to Arg-56, Gln-101 to Leu-112. Leu-119 to Ser-124, Lys-129 to Trp-138.
828753	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1096 as residues: Ile-1 to Gly-44.
828754	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1097 as residues: Leu-21 to Gln-27.
828757	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1098 as residues: Thr-27 to Arg-34. Tyr-40 to Trp-47. Thr-83 to Ser-90.
828761	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1099 as residues: Arg-1 to Gln-19.
828762	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1100 as residues: Phe-1 to Arg-11. Leu-48 to Lys-56.
828764	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1101 as residues: Asp-79 to Arg-84.
828765	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1102 as residues: Ala-5 to Ala-10.
828766	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1103 as residues: Gly-1 to Lys-10. Glu-21 to Leu-27. Ser-38 to Leu-43.
828768	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1105 as residues: Lys-39 to Lys-64.
828770	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1106 as residues: Ser-3 to Tyr-9.
828771	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1107 as residues: Ser-13 to Cys-21.
828772	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1108 as residues: Arg-28 to Asp-34.
828776	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1111 as residues: Pro-6 to Thr-13.
828784	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1118 as residues: Glu-6 to Leu-21. Ala-34 to Ala-40.
828785	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1119 as residues: Arg-53 to Ser-64.
828786	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1120 as residues: Thr-1 to Thr-16. Ser-32 to Lys-39.
828790	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1122 as residues: Pro-13 to Ala-21.
828791	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1123 as residues: Lys-1 to Cys-6.
828792	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1124 as residues: Arg-1 to Thr-7. Gln-12 to Gly-17.
828799	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1128 as residues: Thr-2 to Lys-8. Val-47 to Trp-52.
828802	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1130 as residues: Gly-41 to Met-47. Lys-59 to Arg-72.
828803	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1131 as residues: Arg-8 to Thr-14. Ala-51 to Ser-58. Ser-60 to Ser-79. Leu-97 to His-104.
828804	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1132 as residues: Lys-1 to Pro-12. Asn-43 to Lys-48.
828805	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1133 as residues: Glu-15 to Ser-20. Thr-28 to Arg-39.
828807	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1134 as residues:

	Glu-14 to Lys-19.
828821	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1142 as residues: Cys-9 to Leu-15, His-28 to Gly-36.
828825	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1145 as residues: Pro-38 to Pro-43.
828826	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1146 as residues: Ile-7 to Leu-15, Lys-18 to Ser-36, Thr-66 to Lys-72, Thr-91 to Tyr-97, Val-99 to Cys-106, Glu-154 to Lys-159, Glu-171 to Asn-176, Met-187 to Ser-192, Leu-203 to Gln-212.
828829	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1147 as residues: Ser-52 to Glu-58.
828835	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1150 as residues: Lys-89 to Ser-104.
828838	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1151 as residues: Arg-1 to Arg-11.
828840	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1152 as residues: Gly-32 to Gly-37.
828845	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1153 as residues: Asn-23 to Tyr-34.
828846	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1154 as residues: Ala-40 to Tyr-55, Glu-57 to Asn-66, Glu-74 to Asn-79.
828847	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1155 as residues: Gln-66 to Gly-77, Gly-86 to Ala-93.
828849	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1156 as residues: Arg-16 to Ser-25, Asp-97 to Pro-106, Pro-166 to Leu-176, Glu-271 to Gln-285, Thr-287 to Met-294, Ser-310 to Glu-316, Pro-330 to Gly-338, Phe-400 to Ser-415, Thr-425 to Ser-433, Lys-453 to Pro-469.
828852	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1158 as residues: Val-33 to Ser-39.
828853	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1159 as residues: Pro-25 to Ser-31, Ser-34 to Gly-41.
828857	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1160 as residues: Lys-5 to Leu-10, Ser-20 to Glu-30, Leu-32 to Thr-37.
828861	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1161 as residues: Arg-33 to Phe-38, Arg-59 to Gly-64, Pro-100 to His-121, Arg-144 to Pro-162, Gln-213 to Thr-221, Pro-262 to Trp-268, Ala-292 to Phe-302, Pro-315 to Pro-323.
828866	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1162 as residues: Cys-1 to Gln-6, Gln-79 to Ala-89, Thr-96 to Leu-102.
828872	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1163 as residues: Gly-17 to Leu-40, Ala-47 to Phe-63, Glu-66 to Val-71, Ile-75 to His-92, Glu-112 to Asn-119, Asp-122 to Arg-135, Asn-140 to Phe-152, Asn-160 to Arg-166.
828874	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1164 as residues: Arg-1 to Ala-34, Pro-41 to Pro-47, Pro-49 to Asp-57, Asn-99 to Ala-105, Met-107 to Thr-112, Lys-118 to Ser-135, Glu-145 to Ile-156, Ala-202 to Lys-209, Lys-214 to Ile-220, Ala-224 to Ala-236, Ala-239 to Pro-248, Pro-260 to Lys-270, Lys-275 to Lys-300.
828875	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1165 as residues: Pro-17 to Gly-24, His-31 to Phe-36, Glu-72 to Val-79, Val-99 to Asp-104.
828878	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1167 as residues: Ser-33 to Asp-45, Thr-48 to Glu-53, Lys-70 to Glu-75, Phe-125 to Phe-131, Asp-216 to Ile-223, Met-244 to Thr-252, Asn-272 to Leu-281, Gln-314 to Lys-320, Ala-340 to Ser-348.
828879	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1168 as residues: Ser-1 to Arg-8.
828881	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1169 as residues: Arg-1 to Lys-8, Asp-184 to Gly-190, Pro-269 to Asp-274.
828885	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1170 as residues: Glu-6 to Gly-11, Gln-34 to Ala-41, Val-62 to Gly-69, Val-79 to Glu-92, Pro-95 to Asp-100, Lys-106 to Leu-123, Asp-178 to Asn-185, His-208 to Ser-213, Glu-224 to Val-231, Gly-233 to Lys-

	241. Ser-254 to Ser-265. Phe-279 to Ser-285. Asn-292 to Gly-307. Lys-311 to Gly-324.
828887	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1172 as residues: Ala-1 to Lys-6. Ala-55 to Ser-60. Tyr-65 to Tyr-70. Thr-75 to Pro-84. Ser-106 to Ser-111. Asn-121 to Arg-131. Glu-145 to Pro-150. Pro-156 to His-171. Ser-188 to Leu-196. Asp-231 to His-238. Ser-276 to Arg-281. Arg-298 to Glu-307. Glu-332 to Glu-339. Tyr-355 to Thr-362. Ala-381 to Ser-392. Glu-409 to Val-422.
828891	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1174 as residues: Pro-1 to Glu-18, Gly-26 to Pro-33, Pro-66 to Gly-75, Gln-105 to Val-110. Ser-128 to Pro-134, Glu-182 to Leu-187.
828899	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1175 as residues: His-1 to Arg-11. Ser-40 to Gln-49.
828907	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1176 as residues: Ser-21 to Asp-28. Pro-30 to Cys-38. Arg-98 to His-103, Asn-118 to Ile-136. Ser-153 to Trp-161, Arg-163 to Tyr-172. Thr-174 to Ser-181.
828917	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1179 as residues: His-1 to Gln-22. Thr-27 to Phe-38.
828921	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1180 as residues: Glu-1 to Glu-6.
828922	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1181 as residues: Thr-6 to Ser-21.
828926	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1184 as residues: Gly-108 to Tyr-117.
828928	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1185 as residues: Gln-7 to Trp-13. Pro-46 to Ala-55.
828930	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1186 as residues: Glu-73 to His-79. Gly-105 to Tyr-110. Asp-161 to Asn-166, Lys-187 to Gln-196, Tyr-200 to Leu-206. Glu-222 to Met-229. Ala-252 to Ser-267. Asn-314 to Trp-323. Gly-344 to Asn-352.
828937	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1188 as residues: Met-28 to Lys-33. Asp-40 to Ala-64. Tyr-72 to Lys-85. Thr-124 to Leu-131. Ala-148 to Tyr-155.
828940	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1189 as residues: Pro-23 to Gln-29. Ile-56 to Asn-61. Lys-69 to Lys-75.
828943	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1191 as residues: Val-5 to Gly-11. Gln-26 to Asp-36, Val-93 to Lys-98. Lys-101 to Thr-124. Lys-130 to Asp-141. Thr-163 to Lys-172. Ser-195 to Ala-200. Tyr-210 to Ile-220.
828946	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1192 as residues: Arg-29 to Glu-34. Ala-74 to Leu-79. Ser-88 to Ala-96. Glu-126 to Leu-133. Glu-149 to Pro-156. Pro-177 to Asp-182.
828947	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1193 as residues: Lys-28 to Gly-40.
828956	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1194 as residues: Pro-84 to Asp-94. Ile-99 to Asn-105. Lys-131 to Lys-136, Lys-141 to Asn-146, Lys-153 to His-162. Asp-170 to Arg-179, Gln-248 to Ile-258. Thr-262 to Leu-267. Thr-270 to Phe-279, Arg-294 to Leu-302.
828958	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1195 as residues: Cys-14 to Ser-25.
828965	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1196 as residues: Ala-29 to Leu-35. Pro-83 to Val-88.
828969	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1197 as residues: Arg-2 to Gly-8.
828971	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1198 as residues: Glu-53 to Lys-60.
828973	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1199 as residues: Ser-18 to Thr-25. His-177 to Tyr-186.
828980	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1200 as residues: Cys-4 to Glu-15.
828984	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1201 as residues:

	Asn-14 to Lys-19. Asp-55 to Lys-64. Thr-120 to Glu-125. Pro-149 to Gly-154. His-206 to Lys-213. Pro-242 to Arg-249. Met-269 to Glu-279. Arg-281 to Ser-287. Phe-312 to Gly-317. Arg-361 to Ser-368. Glu-374 to Gln-380. Ile-386 to Tyr-391. Glu-412 to Gln-428. Arg-435 to Val-471. Ser-483 to Lys-502. Lys-507 to Glu-517, Lys-519 to Pro-530. Ser-541 to Pro-550. Gly-567 to Lys-589. Glu-593 to Val-613. Lys-616 to Leu-636. Ser-647 to Leu-673. Pro-677 to Glu-689.
828988	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1203 as residues: Asp-60 to Lys-75.
828995	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1205 as residues: Thr-26 to Gly-33. Ser-42 to Ser-53. Pro-73 to Leu-78. Pro-101 to Gly-107. Pro-147 to Ser-157, Pro-168 to Ser-176. Ser-203 to His-208. Ser-216 to Cys-221.
829005	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1207 as residues: Pro-17 to Glu-22. Thr-129 to Lys-137. Asp-164 to Asp-170.
829009	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1208 as residues: Pro-1 to Arg-14. Pro-36 to Arg-54, Arg-61 to His-68. Arg-83 to Ile-92, Ala-95 to Arg-103, Arg-107 to Glu-114.
829012	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1210 as residues: His-6 to Ser-11. Ser-122 to Asn-128. Leu-216 to Asp-221. Ser-323 to His-328.
829013	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1211 as residues: Ile-10 to Leu-16. Pro-24 to Cys-29.
829019	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1212 as residues: Tyr-29 to Ser-42.
829020	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1213 as residues: Pro-22 to Arg-32. Leu-122 to Asp-127. Gln-134 to Tyr-140. Asp-153 to Arg-168.
829021	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1214 as residues: Ile-11 to Phe-16. Pro-38 to Ile-53.
829030	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1216 as residues: Lys-82 to Gly-87. Lys-224 to Asp-230. His-245 to Glu-253. Ser-279 to Lys-285. Val-308 to Lys-314. Arg-342 to Met-348. Lys-392 to Arg-397. His-452 to Gly-458.
829035	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1217 as residues: His-36 to Ser-43.
829051	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1221 as residues: Pro-3 to Trp-9.
829052	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1222 as residues: Ala-32 to Pro-37. Pro-57 to Trp-62. Pro-82 to Leu-93.
829057	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1223 as residues: Glu-9 to Thr-21. Leu-32 to Arg-45. Glu-49 to Ala-54, Lys-62 to Leu-68. Ala-71 to Thr-99. Leu-106 to Glu-113.
829059	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1225 as residues: Asn-2 to Ser-16.
829061	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1226 as residues: Lys-1 to Ser-7.
829062	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1227 as residues: Pro-15 to Cys-23, Pro-46 to Ala-54, Pro-71 to Gly-78, Leu-84 to Pro-92, Leu-131 to Arg-137. Ala-151 to Glu-161, Thr-215 to Leu-222, Glu-253 to Ser-261. Leu-269 to Leu-275. Asn-280 to Ser-285. Arg-292 to Glu-298. Gly-302 to Ser-309. Thr-322 to Arg-327. Lys-376 to Leu-388.
829063	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1228 as residues: Gly-12 to Ala-20. Arg-58 to Phe-68.
829064	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1229 as residues: Cys-9 to Tyr-14, Gly-35 to Thr-41. Ser-44 to Thr-49, Cys-53 to Thr-68. Leu-98 to Val-103, Ile-180 to Tyr-187. Ser-208 to Val-215.
829066	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1230 as residues: Phe-15 to Met-20.
829069	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1232 as residues: Asn-1 to Gly-12. Pro-31 to His-38. Ser-54 to Ser-59. Gly-64 to Lys-69.
829074	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1233 as residues: Leu-1 to Thr-17. Glu-38 to Gln-44. Glu-46 to Asp-55. Glu-82 to Glu-100. Lys-119 to Gly-129.

	Lys-147 to Ser-153. Pro-187 to Thr-210. Leu-225 to Val-233. Pro-272 to Gly-279. Arg-290 to Ser-303. Pro-311 to Lys-318. Ser-334 to Pro-356. Ser-370 to Arg-377. Gly-407 to Ser-412. Met-415 to His-423.
829077	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1234 as residues: Thr-1 to Thr-10. Asp-29 to Trp-35. His-37 to Trp-50. Lys-58 to Thr-65. Glu-77 to Glu-91. Glu-116 to Arg-128. Cys-219 to Pro-224.
829085	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1237 as residues: Arg-9 to Lys-31. Leu-66 to Lys-71. Gln-119 to Gly-131. Gln-230 to Leu-239.
829093	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1238 as residues: Gln-21 to Asp-26. Glu-178 to Asn-185, Arg-213 to Glu-218, Asp-238 to Asn-246, Val-264 to Pro-272. Val-280 to His-288.
829099	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1239 as residues: Arg-2 to Ser-8, Thr-140 to Ser-151. Val-153 to His-165. Leu-176 to Arg-182, Asp-200 to Thr-207. Asn-224 to Asp-229. Cys-239 to Ser-246.
829102	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1241 as residues: Pro-10 to Lys-19.
829103	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1242 as residues: Pro-30 to His-46. Glu-127 to Leu-133.
829104	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1243 as residues: Ser-19 to Trp-26. Lys-37 to Leu-59.
829109	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1244 as residues: Gln-22 to Ser-29.
829115	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1246 as residues: Gly-23 to Cys-29. Pro-35 to Cys-40, Gly-51 to Ser-64. Asp-108 to Arg-115, Glu-132 to Val-146, Thr-149 to Glu-155.
829120	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1249 as residues: Gly-68 to Arg-74. Pro-83 to Asn-88.
829126	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1252 as residues: Lys-18 to Lys-28.
829136	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1254 as residues: Asp-19 to His-26. Asp-127 to Gly-144, Thr-179 to Gln-194, Val-223 to Thr-229. Pro-235 to Tyr-240.
829138	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1255 as residues: Ala-23 to Glu-28. Glu-37 to Ser-46, Glu-63 to Gly-68. Gln-75 to Phe-84. Thr-91 to Ser-97. His-106 to Pro-117.
829142	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1256 as residues: Pro-21 to Thr-35.
829148	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1257 as residues: Pro-33 to Lys-40.
829149	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1258 as residues: His-9 to Glu-18. Arg-91 to Gly-96. Ser-124 to Asp-133. Asn-163 to Cys-172. Asn-216 to Thr-222. Thr-229 to Ile-235. Lys-238 to Glu-243.
829162	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1260 as residues: Arg-1 to Arg-6, Ala-53 to Gln-58.
829179	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1263 as residues: Gln-10 to Thr-21.
829184	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1264 as residues: Thr-76 to Val-81. Leu-88 to Pro-100. Tyr-140 to Lys-150.
829185	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1265 as residues: Pro-1 to Ser-21.
829188	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1266 as residues: Lys-11 to Trp-20. Ser-22 to Ala-27. Ile-35 to Met-51. Val-53 to Glu-69. Asn-145 to Leu-151. Asp-179 to Gln-187. Pro-280 to Ala-285. Asp-293 to Ile-300.
829190	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1267 as residues: Arg-3 to Gln-9. Pro-29 to Gln-34. Glu-98 to Asp-111.
829196	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1269 as residues:

	Leu-53 to Asn-62. Ala-125 to Ala-132.
829197	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1270 as residues: Leu-14 to Pro-19. Ser-25 to Ser-37.
829203	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1272 as residues: Gly-1 to Leu-9. Ser-80 to Gly-85.
829209	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1273 as residues: Ser-17 to Glu-29.
829210	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1274 as residues: Ser-13 to Tyr-18.
829214	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1275 as residues: Pro-2 to Asn-10. Lys-49 to Asn-54. Arg-91 to Asn-96. Glu-118 to Cys-125. Pro-139 to Glu-144.
829215	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1276 as residues: Asn-1 to Leu-6. Ser-27 to Pro-32.
829219	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1277 as residues: Pro-15 to Pro-25. Ala-54 to Phe-61. Ile-63 to Ser-82.
829220	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1278 as residues: Pro-1 to Ser-9. Glu-48 to Gly-54. Gly-66 to Leu-71. Pro-78 to Glu-84. Ala-108 to Gln-116. Ile-167 to Asp-172. Thr-179 to His-185.
829222	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1279 as residues: Thr-45 to Gln-51. Cys-53 to Asp-60. Gly-122 to Gly-127. Lys-136 to Gly-142. Pro-164 to Lys-172.
829223	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1280 as residues: Ile-11 to Trp-16.
829225	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1281 as residues: Lys-24 to Trp-30.
829226	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1282 as residues: Lys-48 to Lys-56. Arg-64 to Glu-79. Glu-102 to Tyr-111. Glu-159 to Cys-165. Thr-187 to Lys-193. Tyr-212 to Arg-220, Tyr-254 to Pro-262, Gly-278 to Asp-284, Pro-336 to Pro-341. Pro-441 to Gly-452. Glu-468 to Asp-480. Phe-486 to Tyr-495. Asp-498 to Asn-503.
829227	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1283 as residues: Pro-40 to Ala-46.
829231	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1284 as residues: Cys-12 to Ser-17.
829233	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1286 as residues: Pro-5 to Met-16. Ala-37 to Ala-46. Pro-70 to Leu-75.
829239	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1287 as residues: Glu-63 to Arg-70. Pro-82 to Leu-91. Arg-139 to Gln-146.
829242	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1289 as residues: Arg-11 to Gly-17, Lys-113 to Gly-120, Arg-163 to Ser-168, Asp-200 to His-210. Ile-217 to Ile-223. Arg-260 to Glu-266. Ser-274 to Leu-281.
829246	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1290 as residues: Arg-17 to Phe-25. Asn-27 to Asn-41. Thr-57 to Ser-69. Gln-92 to Asp-98.
829250	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1291 as residues: Ser-2 to Ile-16.
829253	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1292 as residues: Arg-10 to Arg-20, Gly-48 to Val-53. Glu-69 to Asp-76. Glu-116 to Glu-122. Glu-132 to Trp-143, Asp-166 to Asn-175. Arg-191 to Asn-197. Gln-205 to Gly-233. Lys-235 to Ala-274.
829263	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1294 as residues: Pro-1 to Arg-13. Gly-20 to Gly-27. Gly-32 to Lys-38.
829266	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1295 as residues: Lys-1 to Arg-6.
829271	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1296 as residues: Ala-7 to Thr-13. Lys-56 to Lys-66, Pro-81 to Asp-88. Glu-140 to Thr-148, Ser-158 to Gln-164, Glu-201 to Asp-207. Glu-221 to Ser-230. Pro-236 to Gly-241. Pro-243 to Arg-261, Gln-270 to Gly-286.
829273	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1297 as residues:

	Ser-19 to Ala-24.
829274	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1298 as residues: Pro-58 to Ser-64.
829276	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1299 as residues: Arg-5 to Glu-38.
829280	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1301 as residues: Ser-31 to Arg-36. Gln-61 to Lys-66.
829284	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1303 as residues: Arg-1 to Thr-7. Ala-9 to Arg-14, Gly-24 to Gly-29, Gly-52 to Ala-60. Arg-62 to Gly-71, Arg-84 to Asn-96. Pro-102 to Thr-107.
829287	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1305 as residues: Gln-38 to Lys-45.
829295	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1306 as residues: Pro-1 to Lys-13. Ala-32 to Gln-44.
829296	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1307 as residues: Glu-45 to Glu-59. Phe-61 to His-67. Ala-78 to Ser-85. Trp-100 to Pro-105.
829298	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1309 as residues: Phe-4 to Gln-10.
829302	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1310 as residues: Ser-17 to Trp-22. Ser-73 to Arg-80.
829320	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1312 as residues: Val-5 to Lys-18, Val-56 to Lys-64. Pro-94 to Gly-100. Phe-140 to Met-148. Glu-154 to Asp-161. Pro-182 to Cys-188. Pro-190 to Asn-197. Ala-216 to Leu-224.
829322	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1313 as residues: Pro-14 to Lys-26. Asp-31 to Lys-39. Arg-112 to Ile-120. Arg-128 to Gly-141. Lys-144 to Asp-151. Lys-159 to Gly-165, His-187 to Trp-203. Asn-246 to Ala-251. Ala-261 to Gln-266. Glu-271 to Thr-280.
829355	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1314 as residues: Ala-26 to Leu-33. Arg-120 to Phe-126. Thr-191 to Asn-203. Ser-223 to Pro-232.
829364	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1315 as residues: Arg-9 to Leu-15. Leu-67 to Ser-74. Asp-93 to Tyr-98. Leu-101 to Pro-108, Lys-117 to Thr-123, Thr-138 to Leu-143.
829946	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1319 as residues: Pro-20 to Gly-29. Gly-46 to Thr-56.
829952	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1321 as residues: Pro-11 to Glu-34. Leu-82 to Gln-88.
829954	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1322 as residues: Leu-32 to Val-38. Gly-75 to Ser-83. Ser-86 to Tyr-92, Lys-96 to His-104. Ser-109 to Ser-117. Gln-124 to Ser-130. Asn-132 to Asn-141, Pro-164 to Leu-178. His-187 to Gly-194. Pro-203 to Gln-217.
829955	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1323 as residues: Asp-39 to Gly-45. Asn-53 to Arg-80. Gln-85 to Gly-95. Glu-101 to Glu-111. His-132 to Gly-151. Leu-159 to Tyr-166. Ser-174 to Ser-179. His-188 to Gly-200. Gln-226 to Gly-235. Cys-255 to Gly-263.
829957	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1324 as residues: Gly-1 to Phe-12, Thr-14 to Val-22, Arg-30 to Met-37. Arg-63 to Pro-69, Arg-82 to Tyr-95, Glu-102 to Gly-109. Lys-223 to Leu-240.
829958	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1325 as residues: Arg-13 to Trp-31. Val-61 to Asn-67. Lys-87 to Arg-92. Leu-97 to Asp-109. Ser-129 to Asp-139.
829960	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1326 as residues: Ile-1 to Ser-10. Ile-26 to Pro-31, Lys-83 to Asp-89, Gly-96 to Asn-101. Pro-122 to Asn-127. Ser-224 to Ile-231. Asp-350 to Pro-356.
829966	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1327 as residues: Tyr-7 to Tyr-15. Pro-43 to Ala-52. Gln-57 to Ala-62. Asn-68 to Ala-73. Tyr-75 to Met-83.
829981	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1330 as residues: Ala-96 to Lys-111. Cys-117 to Cys-128.

829985	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1331 as residues: Arg-11 to Val-19. Ala-21 to Trp-26. Tyr-54 to Lys-76. His-107 to Gln-112.
829988	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1333 as residues: Leu-32 to Glu-43. Gly-50 to Arg-58.
829990	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1334 as residues: Ser-27 to Ser-34. Gly-41 to Val-46.
829991	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1335 as residues: Leu-15 to Gln-25.
829992	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1336 as residues: Asp-1 to Gly-8. Lys-26 to Trp-33. Pro-49 to Pro-54.
829993	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1337 as residues: Leu-3 to Ser-9.
829998	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1338 as residues: Glu-42 to Leu-47. Glu-125 to Ala-136.
830001	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1341 as residues: Gly-1 to Met-8. Ile-12 to Pro-17. Gly-77 to Ser-92.
830010	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1344 as residues: Cys-1 to Ser-6. Ala-55 to Ala-65. Pro-92 to Asn-97. Gln-100 to Pro-106. Gly-119 to Gly-125. Leu-135 to Arg-143. Ser-151 to Asp-159. Gln-164 to Ser-169. Thr-180 to Asn-186. Ser-204 to Val-216. Pro-224 to Arg-250. His-275 to Tyr-287.
830128	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1346 as residues: His-4 to Thr-10.
830129	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1347 as residues: Trp-52 to Thr-58, Arg-222 to Gly-227. Asn-255 to Asp-265, Pro-452 to Arg-458. Glu-503 to Lys-509. Gly-556 to Asn-563. Asp-628 to Glu-633. Glu-676 to Ser-697. Ala-708 to Ser-714.
830140	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1349 as residues: Gln-61 to Lys-67.
830157	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1350 as residues: Pro-1 to Arg-7. Arg-14 to Glu-24.
830195	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1351 as residues: Ser-2 to Arg-14, Ala-37 to Lys-45, Glu-60 to Leu-68, His-75 to Glu-82, Arg-92 to Ser-99, Gly-105 to Gln-110. Arg-119 to Phe-125.
830196	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1352 as residues: Lys-15 to Val-27, Glu-47 to Ile-79, Gly-83 to Phe-133. Lys-135 to Glu-142. Glu-174 to Ile-182. Ala-249 to Lys-257. Glu-272 to Leu-280. His-287 to Glu-294. Arg-304 to Ser-311. Gly-317 to Gln-322. Leu-372 to Lys-388. His-404 to Leu-409.
830409	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1353 as residues: Ser-4 to Ala-9.
830417	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1354 as residues: Pro-33 to Leu-39. Glu-54 to Val-59. Gly-69 to Ser-76.
830531	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1355 as residues: Lys-29 to Glu-37. Leu-126 to Gly-131. Asp-149 to Glu-159. Pro-235 to Thr-255.
830677	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1356 as residues: Leu-23 to Val-37, Glu-39 to Asp-51. Gly-66 to Arg-71, Gly-79 to Gly-85. Pro-87 to Leu-94. Gly-102 to Lys-123. Ser-135 to Asp-142. Gln-145 to Arg-158. Gln-169 to Glu-174. Ala-178 to Gln-190, Ala-196 to Glu-209. Glu-212 to Glu-220. Arg-249 to His-255. Ala-298 to Glu-309, Arg-314 to Lys-368.
831355	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1357 as residues: Lys-49 to Gln-55. Glu-83 to Lys-90. Gly-158 to Gly-164. Lys-185 to Gly-192.
831420	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1358 as residues: Ala-6 to His-19. Glu-28 to Ser-42.
831702	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1359 as residues: Gly-1 to Gly-12. Glu-23 to Gly-28. Gln-56 to Trp-62. Lys-75 to Thr-103. Arg-217 to Asp-223.
832488	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1361 as residues: Leu-52 to Thr-59. Pro-86 to Ser-92. Arg-107 to Gly-118. Lys-121 to Gly-128.
833207	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1362 as residues:

	Val-29 to Arg-43. Gly-66 to Arg-75. Ser-94 to Gly-99. Ser-106 to Ser-112. Asp-135 to Leu-151.
835940	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1363 as residues: Arg-9 to Gln-35. Arg-94 to Cys-104.
837105	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1365 as residues: Ser-59 to Ser-65. Gln-75 to Gln-80.
837373	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1367 as residues: Arg-48 to Tyr-58. Asp-67 to Lys-75.
837687	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1368 as residues: Gly-1 to Asp-9. Ser-40 to Lys-46. Ser-65 to Pro-72. Lys-124 to Asn-137.
837991	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1369 as residues: Lys-41 to Lys-48.
838442	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1370 as residues: Cys-7 to Glu-13. Tyr-27 to Phe-37. Phe-64 to Gly-72. Val-96 to Asp-105. Asp-111 to Ala-117. Arg-119 to Gly-125.
840541	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1371 as residues: Phe-38 to His-43. Asp-53 to Asp-61.
840543	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1372 as residues: Ala-26 to Pro-32. Ser-49 to Ala-59. Glu-106 to Arg-112. Gly-140 to Arg-149. Ala-159 to Trp-181. Glu-216 to Leu-229. Ile-243 to Ser-250. Phe-254 to Lys-259.
840563	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1374 as residues: Ala-67 to Pro-87.
840565	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1375 as residues: Gln-6 to Asn-13. Ser-29 to Lys-37. Arg-73 to Val-78.
840569	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1376 as residues: Ile-1 to Thr-6.
840570	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1377 as residues: Pro-9 to Asp-23.
840571	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1378 as residues: Gly-1 to Leu-6. Gln-13 to Ser-19.
840573	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1379 as residues: Arg-1 to Ala-7, Cys-16 to Cys-21, Arg-28 to Trp-33. Ala-36 to Gln-42. Arg-50 to Val-55. Gly-63 to Gly-74, Glu-100 to Lys-112, Lys-121 to Gln-126, Asp-132 to Leu-148, Ser-155 to Ser-161, Thr-167 to Ser-187. Arg-219 to Leu-228.
840574	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1380 as residues: Lys-60 to Lys-72. Asn-81 to Pro-88.
840575	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1381 as residues: Pro-1 to Arg-6. Tyr-16 to Gly-32. Ser-67 to Gly-74. Ser-95 to Gly-101. Glu-194 to Lys-218. Lys-295 to Leu-305. Met-332 to Glu-337, Leu-339 to Ala-347, Glu-353 to Leu-358, Ile-369 to Glu-375. Glu-437 to Gln-444. Glu-467 to Gly-478. Gly-481 to Gly-505.
840579	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1382 as residues: Pro-40 to Ala-50. Lys-71 to Leu-76, Glu-125 to Lys-138. Cys-153 to Ser-159, Arg-167 to Glu-173, Lys-210 to Ser-215. Asn-251 to Ser-260, Trp-289 to Ser-296. Ala-358 to Ala-363. Thr-369 to Gly-376, Asn-404 to Gly-410. Pro-425 to Glu-433. His-439 to Glu-450, Gln-470 to Ile-476. Thr-493 to Leu-499.
840580	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1383 as residues: Glu-13 to Ile-28. Pro-70 to Gly-75.
840581	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1384 as residues: Ser-1 to Gly-12. Thr-27 to Pro-36. Ser-50 to Met-56.
840605	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1385 as residues: Leu-12 to Leu-17. Glu-49 to Ser-54.
840610	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1388 as residues: Thr-19 to Lys-26. Gly-46 to Thr-52. Thr-63 to Glu-68. Gly-145 to Gly-153. Ser-236 to Thr-241. Ser-253 to Arg-263. Glu-291 to Asp-296.
840612	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1390 as residues: Arg-101 to Arg-108, Trp-119 to Ala-125. Ala-131 to Asn-138. Leu-142 to Thr-150, His-354 to Ile-370.

840622	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1392 as residues: Asp-6 to Gly-11. Ala-13 to Ser-28. His-40 to Thr-232. Arg-242 to Gly-247. Gly-268 to Gln-276.
840624	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1394 as residues: Lys-5 to Gly-12. Ala-20 to Met-26. Gly-49 to Ser-55. Pro-57 to Tyr-63.
840631	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1395 as residues: Glu-8 to Arg-24. Ser-36 to Ser-44. Phe-78 to Arg-84. Ser-116 to Trp-123. Gly-266 to Gly-274. Lys-327 to Lys-332.
840633	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1397 as residues: Ser-137 to Ala-146. Gln-165 to Gln-171.
840636	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1400 as residues: Lys-24 to Tyr-32. Tyr-42 to Lys-47. Gly-60 to Ala-66. Pro-68 to His-77.
840637	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1401 as residues: Ala-10 to Gln-16. Gly-29 to Glu-40. Arg-45 to Ser-51. Thr-62 to Pro-67.
840639	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1402 as residues: Pro-35 to Asn-48. Ser-66 to Ser-73. Asp-76 to Gly-81. Gly-115 to Glu-120. Asp-131 to Gly-147. Ser-152 to Gly-158. Pro-175 to Ser-184. Arg-206 to Asn-220.
840640	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1403 as residues: Ser-118 to Ile-123.
840650	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1404 as residues: Leu-30 to Glu-44. Gly-52 to Ala-57. Tyr-133 to Leu-140. Asp-207 to Ser-219. Gln-272 to Asn-281.
840652	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1405 as residues: Trp-33 to Gly-64.
840653	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1406 as residues: Pro-1 to Ser-6, Leu-14 to Ser-40; Leu-81 to Asp-93. Pro-125 to Phe-130, Gly-137 to Glu-148. Trp-238 to Arg-246. Gln-279 to Asp-295. Cys-305 to Pro-311.
840655	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1407 as residues: Pro-2 to His-7.
840659	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1408 as residues: Gln-1 to Val-15. Ser-21 to Gly-27. Pro-32 to Trp-42. Asn-272 to Arg-277. Pro-314 to Gln-336.
840660	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1409 as residues: Glu-1 to Asn-17.
840661	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1410 as residues: Cys-7 to Ser-20. Pro-35 to Pro-42. Pro-67 to Ile-80. Thr-94 to Met-100. Leu-122 to Cys-129.
840662	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1411 as residues: Gln-97 to Leu-102. Ala-130 to Ser-136. Ser-142 to Thr-148. Ala-180 to Ser-186. Pro-191 to Glu-198. Asn-234 to Leu-240. Ser-270 to His-280.
840663	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1412 as residues: Pro-1 to Gly-12.
840670	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1413 as residues: Gly-65 to Cys-71. Lys-81 to Gln-88. Thr-97 to Asp-106. Glu-135 to Gly-143. Pro-161 to Ala-169.
840671	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1414 as residues: Pro-4 to Thr-11. Ala-15 to Pro-20.
840672	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1415 as residues: Asp-3 to Ala-10. Val-23 to Thr-34. Gln-96 to Asp-101. Thr-118 to Gly-126. Ala-130 to Lys-140. Thr-156 to Ser-176, Pro-268 to Gln-275. Pro-296 to Gly-304. Pro-342 to Pro-348. Glu-382 to Asp-389. Met-408 to Glu-414, Pro-425 to Gln-443. Pro-457 to Tyr-478. Glu-481 to Tyr-505. Gly-514 to Arg-521. Pro-525 to Gly-547. Ala-555 to Gln-567.
840673	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1416 as residues: Ser-9 to Gly-15. Ser-57 to Arg-72. Lys-90 to Pro-111. Pro-138 to Ser-151. Asp-188 to Arg-193.
840677	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1418 as residues: Gly-17 to Asn-22. Ser-59 to Val-74. Glu-83 to Glu-89. Leu-91 to Ser-97. Glu-165 to Leu-183. Ala-197 to Ile-202. Ala-207 to Pro-212. Lys-227 to Lys-243. Pro-251 to His-258.
840678	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1419 as residues: Glu-43 to Glu-48. Gly-75 to Asp-81. Arg-92 to Ser-100. Asp-108 to Tyr-114. Ala-154 to Asn-161. Thr-266 to Gln-272.

840680	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1420 as residues: Pro-2 to Gly-8.
840691	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1421 as residues: Gln-58 to Ser-64. Asp-83 to Met-88. Ser-104 to Pro-114. Asn-137 to Ser-146. Pro-179 to Gly-185. Arg-206 to Glu-228. Gly-237 to Thr-258. Gln-269 to Asp-275.
840700	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1422 as residues: His-25 to Cys-32. Arg-46 to Glu-52.
840701	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1423 as residues: Gln-8 to Trp-13. Lys-21 to Asp-28. Ile-107 to Leu-112. Lys-125 to Trp-130. Leu-159 to Thr-164.
840702	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1424 as residues: Asp-22 to Met-37.
840705	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1425 as residues: Asp-4 to Pro-12, His-29 to Ala-39, Leu-43 to Glu-66. Asp-71 to Glu-78, Leu-84 to Asp-98, Glu-102 to Ile-121. Pro-137 to Tyr-143.
840715	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1426 as residues: Cys-1 to Gln-42.
840717	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1427 as residues: Cys-1 to Gln-6. Val-19 to Ala-24.
840718	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1428 as residues: Gln-1 to Ser-14.
840724	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1430 as residues: Cys-53 to Lys-59. Thr-61 to Cys-67. Gly-86 to Cys-93.
840725	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1431 as residues: Trp-22 to Thr-27.
840727	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1432 as residues: Thr-1 to Gln-8. Val-23 to Gln-28. Glu-51 to His-63. Glu-73 to Gln-91.
840731	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1433 as residues: Thr-35 to Glu-43. Leu-54 to Leu-60. Pro-89 to Gly-107. Val-109 to Gly-117. Gln-119 to Thr-125.
840733	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1434 as residues: Asp-33 to Ser-48. Pro-62 to Gly-76. Ser-80 to Gln-89. Gly-96 to Trp-109.
840734	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1435 as residues: Gln-12 to Gln-17.
840736	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1436 as residues: Arg-7 to Val-13. Leu-28 to Arg-33. Ser-69 to Gln-76.
840746	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1439 as residues: Asp-7 to Ser-13. Gln-21 to Lys-30. Gln-34 to Val-49. Glu-68 to Glu-73. Leu-79 to Leu-96. Glu-109 to Glu-115, Leu-146 to Ser-153, Leu-197 to Asn-206. Ser-218 to Glu-223, Ala-278 to Trp-283. Lys-297 to Phe-303. Ser-318 to Val-323.
840748	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1440 as residues: Lys-11 to Trp-24, Arg-30 to Ser-36, Arg-41 to Ser-55, Ser-68 to Arg-74, Leu-102 to Lys-108, Val-162 to Thr-167. Ser-188 to Lys-195, Glu-211 to His-216, Arg-253 to Arg-268, Ser-273 to Pro-279. Arg-325 to Glu-330. Lys-358 to Asp-364.
840750	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1441 as residues: Met-48 to Gln-55. Ile-64 to Arg-69.
840751	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1442 as residues: Thr-30 to Lys-37, Gln-51 to Pro-56, Thr-58 to Val-72, Lys-81 to Val-88, Glu-90 to Asp-101. Gly-107 to Pro-113, Glu-115 to Ser-120. Lys-133 to Pro-143, Gly-172 to Asn-194. Val-196 to Gly-216. Phe-221 to Gln-226. Asn-255 to Lys-260. Leu-282 to Lys-290.
840757	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1443 as residues: Arg-8 to Gln-19. Arg-25 to Lys-38. Pro-91 to Pro-97.
840760	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1445 as residues: Gly-9 to Thr-14. Tyr-23 to Asp-32. Pro-40 to Pro-46.
840781	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1447 as residues: Glu-8 to Ser-13. Ser-26 to Lys-33. Lys-45 to Ser-50. Glu-81 to Glu-92. Asn-109 to Asp-115.
840789	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1448 as residues: Val-141 to Glu-147. Met-160 to Phe-166. Ser-176 to Asn-183. Arg-203 to Arg-210.

840790	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1449 as residues: Pro-17 to Asn-25.
840791	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1450 as residues: Ser-62 to Gln-126. Ala-143 to Gly-182.
840798	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1451 as residues: Ser-87 to Gln-95.
840802	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1452 as residues: Pro-22 to Glu-30. Lys-73 to Gly-79. Met-133 to Lys-140. Arg-166 to Lys-176.
840803	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1453 as residues: Ala-3 to Pro-12. Gln-29 to Ile-39. Ser-54 to Glu-72, Glu-79 to Asp-86. Pro-140 to Asp-147, Lys-161 to Lys-184, Val-188 to Thr-195, Asp-203 to Glu-215, Gln-231 to Phe-248. Gly-271 to Thr-281. Ser-290 to Asp-302, Gly-322 to Ser-336, Pro-342 to Leu-347. Lys-370 to Arg-394, Ser-424 to Ser-431. Asp-467 to Gln-483. Lys-507 to Ser-519, Phe-522 to Ser-567. Leu-578 to Gly-583, Thr-593 to Gln-600.
840811	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1455 as residues: Ser-10 to Gln-25. Pro-108 to Lys-124.
840814	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1457 as residues: Gln-29 to Arg-36.
840825	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1459 as residues: Ala-1 to Arg-10.
840827	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1461 as residues: Gly-13 to Gly-18, Pro-34 to Thr-45. Ser-47 to Asp-56. Ser-61 to Ser-73, Gly-81 to Gly-89. Gly-96 to Arg-102. Asp-118 to Glu-123. Thr-126 to Ala-132. Glu-178 to Glu-184. Glu-254 to Gly-260.
840828	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1462 as residues: Trp-53 to Asn-59. Thr-106 to Thr-111.
840829	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1463 as residues: Pro-16 to Thr-23. Val-67 to Asn-73.
840831	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1464 as residues: Thr-34 to Leu-42. Pro-82 to Tyr-88.
840837	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1466 as residues: Phe-39 to Ala-44. Lys-67 to Gln-77.
840838	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1467 as residues: Arg-2 to Gly-9, Arg-38 to Lys-46, Ser-53 to Ser-73. Asp-79 to Ala-84, Leu-129 to Glu-136, Glu-202 to Arg-210. Glu-216 to Ala-231. Glu-234 to Glu-254. Lys-259 to Leu-265.
840842	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1469 as residues: Phe-20 to Gly-25. Pro-73 to His-81. Pro-84 to Gly-90. Ser-94 to Arg-100.
840843	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1470 as residues: Gln-45 to Arg-55. Glu-74 to Leu-79, Lys-97 to Lys-103, Arg-108 to Lys-114. Asp-124 to Asp-138. His-153 to Gly-174. Lys-205 to Ala-223. Glu-230 to Arg-241. Glu-249 to Arg-256.
840845	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1471 as residues: Pro-29 to Trp-37. Pro-39 to Arg-44. Thr-51 to Trp-56. Ala-63 to Pro-73.
840851	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1473 as residues: Thr-23 to Glu-30. Gly-34 to Pro-51, Ser-53 to Pro-65. Lys-68 to Asp-85. Gly-97 to Gly-105, Ser-150 to Leu-163. Gln-205 to Thr-216, Thr-221 to Ser-227. Pro-237 to Leu-242. Val-258 to Asn-269, Glu-280 to Phe-291. Gly-295 to Pro-302, Gly-324 to Pro-332, Ser-342 to Ala-353. Arg-388 to Thr-426. Ser-432 to Tyr-439. Ala-452 to Gly-510. Glu-512 to Pro-524.
840854	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1475 as residues: Met-37 to Arg-43.
840858	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1476 as residues: Glu-37 to Lys-51. Thr-85 to Gly-91. Ser-115 to Trp-121. Tyr-177 to Asn-186.
840859	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1477 as residues: Asp-1 to Gln-7. Met-27 to Val-34.
840863	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1478 as residues: Lys-41 to Ala-51.
840868	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1479 as residues: Ala-3 to Trp-16. Lys-63 to Asn-72. Gln-112 to Leu-121. Leu-153 to Asp-159. Ala-163 to Leu-

	168, His-180 to Asp-187, Asp-347 to Gly-352, Met-356 to Ser-364, Pro-390 to Lys-401, Ala-519 to Thr-541, Arg-549 to Lys-554.
840869	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1480 as residues: Pro-6 to Asp-12, Arg-28 to Thr-37, Ile-50 to Lys-59, Ala-63 to Gly-70, Pro-89 to Tyr-96, Ser-103 to Ile-111, Thr-114 to Phe-121, Asp-141 to Pro-147, Arg-162 to Thr-172.
840870	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1481 as residues: Pro-18 to Gly-24.
840875	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1482 as residues: Thr-29 to Asn-37, Val-58 to Thr-63, Glu-114 to Glu-120, Thr-177 to Leu-184, Leu-196 to Ser-205.
840876	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1483 as residues: Gln-2 to Thr-7, Phe-119 to Trp-125, Thr-141 to Cys-147, Asn-210 to Gly-216, Thr-248 to Val-255, Pro-291 to Arg-296, Asp-308 to Asp-316, Glu-327 to Lys-335, Ser-341 to Thr-346.
840881	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1484 as residues: Asp-1 to Pro-14, Met-24 to Val-42, Lys-44 to Ser-60, Tyr-107 to Thr-114.
840883	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1485 as residues: Pro-28 to Cys-35, Glu-37 to Gln-43, Arg-51 to Arg-58, Gly-79 to Gly-85.
840886	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1486 as residues: Arg-1 to Ser-6, Gln-45 to Gln-51.
840887	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1487 as residues: Asn-77 to Met-83.
840891	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1488 as residues: Gln-1 to His-8, Arg-16 to Gln-25, Thr-32 to Ser-42.
840892	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1489 as residues: Pro-19 to Val-29, Lys-31 to Tyr-48.
840894	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1490 as residues: Pro-48 to Leu-55, Ser-65 to Gly-70, His-93 to His-126, Ile-128 to Glu-146, Leu-151 to Trp-159, Trp-161 to Pro-170, His-177 to Ala-182.
840896	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1491 as residues: Thr-37 to Ser-51.
840897	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1492 as residues: Ser-8 to Gly-13, Cys-32 to Ser-39, Cys-59 to Gly-64, Arg-72 to Gly-78, Leu-91 to Glu-104, Gly-118 to Glu-123, Asn-140 to Gln-149, Leu-157 to Ile-173, Glu-188 to Gln-209, Asn-222 to Lys-244, Gln-294 to Ile-300, Glu-336 to Val-342, Leu-346 to Lys-355.
840898	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1493 as residues: Ala-1 to Thr-6.
840904	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1494 as residues: Arg-7 to Gly-18, Asn-33 to Trp-40, Leu-48 to Thr-54, Pro-101 to Ala-106, Lys-119 to Val-126, Lys-169 to Leu-175, Gln-205 to Asp-216, Met-232 to Val-239, Arg-241 to Glu-252, Glu-260 to Pro-276, Ser-284 to Ile-291.
840905	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1495 as residues: Pro-17 to Ala-29, Leu-57 to His-67, Tyr-131 to Gly-137, Val-148 to Ser-153, Leu-214 to Gln-225, Ser-242 to Ser-247, Gly-261 to Ser-267, Arg-281 to Pro-286, Thr-299 to Lys-304, Ile-314 to Val-320, Lys-348 to Thr-366.
840908	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1496 as residues: Phe-49 to Glu-58, Leu-71 to Pro-85, Gln-105 to Leu-110, Thr-153 to Glu-158, Glu-168 to Ser-173, Asn-192 to Lys-197, Gln-207 to Asn-264, Pro-292 to Lys-299, Gln-331 to Leu-337, Ser-355 to Gly-362, Asp-381 to Gly-387, Val-396 to Asp-403, Thr-411 to His-416, Arg-451 to Gly-457, Glu-464 to Ala-469, Asn-492 to Gly-509, Tyr-518 to Thr-526, Glu-562 to Ser-567.
840909	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1497 as residues: Pro-15 to Gly-29, Arg-34 to Ser-52.
840910	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1498 as residues: Arg-26 to Met-31.
840912	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1499 as residues: Ala-14 to His-19, Gln-31 to Thr-39, Phe-55 to Cys-60.
840916	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1500 as residues:

	Gly-7 to Leu-13.
840917	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1501 as residues: Ile-20 to Cys-26.
840918	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1502 as residues: Glu-59 to Thr-69. Thr-89 to Glu-96. Met-103 to Thr-110. Tyr-168 to Lys-176. Asn-196 to Ile-201. Thr-226 to Phe-235. Asp-244 to Glu-252. Lys-282 to Ser-290. Thr-325 to Thr-339, Lys-357 to Lys-362. Asn-397 to Tyr-403.
840922	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1503 as residues: Phe-1 to Lys-7.
840927	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1505 as residues: Cys-52 to Lys-57.
840928	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1506 as residues: Arg-2 to Thr-7, Gln-65 to Trp-73. Glu-103 to Glu-110. Glu-219 to Asn-227. Glu-309 to Trp-320, Asp-389 to Asp-394.
840929	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1507 as residues: Pro-1 to Arg-7, Asp-21 to Lys-43, Lys-48 to Arg-53, Gln-59 to Gln-75, Pro-81 to Ala-86, Asp-127 to Lys-143. Glu-191 to Arg-197.
840930	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1508 as residues: Phe-1 to Cys-8. Ala-10 to Gly-23. Gln-114 to Lys-120. Glu-129 to Phe-135. Ile-155 to Gln-160. Ser-193 to Thr-199. Asp-214 to Gly-226. Asp-236 to Gly-245. Ala-283 to Arg-288. Ala-322 to Asp-331.
840931	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1509 as residues: Leu-28 to Asp-35. Leu-59 to Ser-65. Glu-111 to Lys-117. Gln-131 to Ala-137.
840941	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1510 as residues: Pro-16 to Ser-26, Arg-41 to Gly-49. Glu-51 to Arg-64, Tyr-69 to Phe-77. Thr-82 to Asp-90, Asp-168 to Gln-173. Lys-240 to Tyr-248.
840944	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1511 as residues: Gln-1 to Asp-10. Pro-104 to Glu-113. Pro-136 to Ala-142. Asn-152 to Lys-161.
840948	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1513 as residues: Ala-21 to His-26. Pro-41 to Gln-46. Lys-56 to Glu-66.
840953	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1515 as residues: Gly-1 to Ser-8, Arg-10 to Ser-15, Leu-17 to Gly-22, Lys-115 to Ala-130, Tyr-149 to Gly-156, Asn-181 to Glu-190, Glu-252 to Glu-257, Ser-339 to Asp-347. Leu-356 to Leu-361, Ser-387 to Lys-395. Thr-470 to Ile-476.
840954	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1516 as residues: Pro-12 to Phe-17. Asn-40 to Lys-55, Ser-105 to Thr-112, Lys-154 to Trp-168. Arg-176 to Phe-184. Leu-216 to Thr-224, Leu-237 to Val-242. Ala-365 to Val-370, Pro-379 to Gly-386. Leu-424 to Gly-430. Tyr-439 to Ser-451. Lys-459 to Tyr-464. Arg-595 to Asn-606. Asp-613 to Asn-621.
840958	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1517 as residues: Ala-1 to Lys-14. Glu-18 to Lys-40. Pro-61 to Thr-68. Pro-70 to Gln-78. Tyr-82 to Gly-90.
840960	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1518 as residues: Pro-42 to Asp-47. Thr-53 to Pro-59.
840968	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1519 as residues: Gln-5 to Glu-11.
840969	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1520 as residues: Glu-40 to His-45, Tyr-59 to Gly-68. Pro-107 to Pro-112, Leu-116 to Thr-121. Asp-139 to Lys-152.
840978	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1524 as residues: Ile-14 to Asp-19.
840980	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1525 as residues: Leu-1 to Pro-9, Val-13 to Val-41. Glu-79 to Met-86. Gln-89 to Lys-97. Glu-116 to Lys-128. Ser-130 to Gln-136. Arg-152 to Gly-158. Cys-161 to Lys-171. Pro-173 to Ala-182. Cys-184 to Ala-190. Leu-200 to Ser-206. Pro-225 to Leu-252.
840982	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1526 as residues: Pro-1 to Cys-9. Lys-27 to Ser-32. Glu-58 to Val-63. Ser-78 to Val-83.
840985	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1527 as residues:

	Asn-6 to Leu-17. Met-23 to Asp-33. His-56 to Gln-69. Arg-82 to Asp-89. Arg-92 to Lys-97. Ala-99 to Arg-104. Glu-140 to Asp-146. Ser-173 to Tyr-178. Cys-189 to Leu-194. Val-239 to Asn-245. Glu-266 to Arg-276.
840989	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1528 as residues: Asn-72 to Ile-78. Gly-102 to Asp-109, Arg-150 to Trp-158. Phe-255 to Pro-266. Glu-272 to Lys-277.
840991	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1529 as residues: Thr-10 to Ala-17. His-24 to Leu-30. Ala-128 to Val-136.
840996	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1530 as residues: Cys-107 to Gln-112. Lys-142 to Ser-148.
840997	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1531 as residues: Ile-25 to Pro-35. Asp-37 to Thr-42. Ala-56 to Phe-71. Arg-75 to Gln-82. Thr-127 to Tyr-139.
840998	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1532 as residues: Lys-19 to Thr-24. Pro-35 to Gln-130.
840999	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1533 as residues: Phe-44 to Arg-53.
841000	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1534 as residues: Ala-4 to Pro-13.
841002	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1535 as residues: Pro-8 to Ser-18. His-27 to Ser-39. Pro-50 to Gly-59.
841003	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1536 as residues: Pro-24 to Glu-31.
841008	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1537 as residues: Cys-10 to Cys-16. Thr-114 to Gly-120. Asn-200 to Lys-209.
841013	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1538 as residues: Phe-58 to Asn-66. Ala-82 to Gln-88, Ser-169 to Glu-178. Pro-222 to Gly-227. Glu-283 to Glu-289. Ala-314 to Gly-321, Ile-370 to Asn-376, Lys-409 to Ala-423. Asp-444 to Arg-449. Ser-456 to Glu-463. Asn-472 to Asn-477.
841014	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1539 as residues: Asn-8 to Phe-17, Gly-58 to Asp-64, Glu-186 to Ser-191. Ala-266 to Ile-271. Thr-300 to Lys-309, Val-327 to Met-332.
841015	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1540 as residues: Tyr-17 to Thr-29. Lys-35 to Glu-40.
841019	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1542 as residues: Phe-9 to Phe-16.
841024	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1543 as residues: Ser-6 to Gly-15, Ala-90 to Gly-96. Val-119 to Trp-127. Val-147 to Lys-155. Ala-174 to Glu-181, Ala-231 to Leu-239.
841025	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1544 as residues: Leu-18 to His-27. Asp-29 to Ser-42. Glu-62 to Asn-72. Ser-76 to Glu-81.
841026	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1545 as residues: Ala-3 to Gly-10. Lys-41 to Gly-48. Pro-69 to Ser-81. Pro-92 to Thr-97. Asn-101 to Lys-110. Gly-173 to Gly-182. Arg-188 to Asn-199.
841027	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1546 as residues: Pro-1 to Arg-19. Asp-42 to Glu-48. Asp-70 to Tyr-79. Asn-81 to Gly-88. Ala-91 to Gly-98. Glu-153 to Pro-163.
841029	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1547 as residues: Arg-50 to Ser-58. Arg-66 to Asp-73. Pro-96 to Ser-102. Gln-133 to Arg-142.
841030	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1548 as residues: Ser-23 to Gln-30.
841034	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1550 as residues: Ser-56 to Lys-61.
841036	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1551 as residues: Leu-89 to Lys-102.
841039	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1552 as residues: Glu-19 to Ser-24. Ser-52 to Gly-60. Ser-67 to Gly-74. Lys-142 to Gly-148. Pro-178 to Arg-184.

841048	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1554 as residues: Met-22 to Tyr-49. Arg-60 to Thr-69. Gln-93 to Glu-111. Pro-113 to Glu-139, His-152 to Ser-162. Lys-172 to Glu-178. Ser-183 to Ile-188. Asn-191 to Arg-201. Arg-251 to Asn-259. Thr-297 to Arg-303. Val-379 to Gln-401. Ser-407 to Pro-414. Thr-428 to Lys-446.
841050	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1556 as residues: Ile-6 to Asn-15.
841052	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1557 as residues: Pro-37 to Arg-42. Asn-83 to Phe-90. Lys-187 to Cys-192. Asp-209 to Gly-215, His-236 to Lys-243. Tyr-263 to Gly-276. Thr-308 to Gly-314. Glu-346 to Asp-351.
841054	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1558 as residues: Pro-8 to Glu-18. Ala-47 to Gly-53.
841055	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1559 as residues: Val-13 to Leu-31.
841056	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1560 as residues: Arg-8 to Phe-13. Arg-29 to Val-36.
841060	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1561 as residues: Asp-69 to Gln-74.
841062	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1563 as residues: Gly-1 to Lys-6, Thr-10 to Lys-16. Asp-22 to Pro-35, Pro-62 to Asp-77. Ile-85 to Met-97. Leu-130 to Thr-135. Lys-206 to Gly-213. Leu-234 to Ser-242, Leu-334 to Glu-341. Ser-354 to Lys-369. Glu-398 to Lys-409. Glu-425 to Glu-477.
841063	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1564 as residues: Ala-1 to Trp-12. Glu-49 to Gly-56. Lys-99 to Thr-110. Glu-147 to Lys-154.
841067	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1565 as residues: Ser-7 to Ala-12. Gly-14 to Met-30. Lys-52 to Ala-58.
841074	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1566 as residues: Ala-1 to Gln-6, Glu-22 to Arg-30. Leu-43 to Ser-52, Glu-61 to Lys-70, Lys-75 to Glu-84, Thr-105 to Lys-110. Asp-131 to Ala-143. Ser-151 to Thr-158. Thr-200 to Asp-208.
841076	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1567 as residues: Lys-1 to Gly-6, Asp-13 to Glu-27.
841083	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1569 as residues: Leu-42 to Lys-49. Glu-63 to Ser-68. Glu-93 to Gln-98. Asn-109 to Ser-115. Met-147 to Lys-152.
841093	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1571 as residues: Pro-5 to Glu-14. Ala-84 to His-90, Thr-93 to Gly-99. Asn-124 to Val-133. Met-144 to Val-149, Thr-192 to Glu-200.
841097	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1572 as residues: Pro-46 to Glu-56. Phe-65 to Ser-73. Glu-114 to Asp-121. Thr-132 to Gln-139. Asp-171 to Pro-177. Thr-215 to Val-221.
841098	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1573 as residues: Arg-9 to Gly-14. Met-36 to Lys-57. Pro-93 to Gly-98.
841113	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1575 as residues: Gln-10 to Gly-18.
841115	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1576 as residues: Ile-1 to Lys-13, Thr-36 to Ala-42, Asn-49 to Leu-55, Phe-59 to Arg-70, Asp-80 to Arg-86. Lys-92 to Lys-98.
841117	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1578 as residues: Arg-1 to Glu-26, Thr-59 to Glu-64. Gln-69 to Met-77, Arg-79 to Ser-84. Pro-86 to Pro-97, Arg-104 to Lys-121. Ala-133 to Arg-141. Leu-162 to Ser-169.
841127	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1580 as residues: Pro-1 to Pro-12. Arg-51 to Ile-56. Lys-69 to Arg-85, Glu-115 to Arg-122. Gly-129 to Gln-134, Lys-138 to Lys-156. Gly-163 to Pro-170.
841128	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1581 as residues: Pro-75 to Glu-91. Glu-121 to Gly-126. Ile-149 to Lys-155, Ala-185 to Asp-201. Glu-237 to Gly-252. Leu-256 to Ser-276.
841134	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1584 as residues: Lys-43 to Leu-48. Lys-54 to Ala-62. Asn-75 to Ala-82. Glu-135 to Asp-140. Glu-173 to Leu-178.

	Lys-213 to Tyr-222.
841138	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1587 as residues: Arg-68 to Gln-74, Ser-85 to Asp-115, Arg-133 to Lys-144, Arg-152 to Ile-165, Pro-184 to Lys-191, Leu-198 to Lys-215, Val-235 to Glu-240, Asp-246 to Asn-266, Glu-284 to Pro-292.
841141	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1589 as residues: Pro-16 to Glu-27, Pro-36 to Phe-43, Asn-71 to Ser-84, Thr-107 to Ser-115, Glu-147 to Lys-161, Pro-167 to Ser-185, Ser-187 to Ser-206.
841145	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1591 as residues: Glu-33 to Pro-40, Arg-48 to Pro-56, Met-71 to Gly-76, Ser-103 to Arg-115.
841146	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1592 as residues: Lys-21 to Thr-26, Thr-37 to Pro-42.
841150	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1593 as residues: Ser-56 to Thr-62.
841153	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1594 as residues: Glu-4 to Trp-9.
841154	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1595 as residues: Asp-24 to Tyr-29, Ser-34 to Asn-42, Leu-45 to Lys-61, Thr-117 to Ser-124, Lys-153 to Asp-158, Glu-174 to Lys-180, Leu-188 to Gly-204, Ala-220 to Leu-227, Gly-262 to His-268, Lys-276 to Thr-287, Phe-307 to Pro-319, Thr-345 to Met-351, Gln-427 to Ala-432, Asp-438 to Gln-443.
841156	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1596 as residues: Glu-4 to Gly-12, Thr-21 to Gln-27, Pro-40 to Ser-47, Pro-50 to Ser-61, Val-101 to Cys-107, Lys-138 to Gly-147, Gln-150 to Tyr-156, Lys-169 to Thr-174.
841157	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1597 as residues: Val-35 to Ala-41, Gln-56 to Trp-70.
841159	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1598 as residues: Gln-1 to Arg-7, Arg-14 to Glu-22, Ala-43 to Asp-55, Thr-65 to Arg-71.
841164	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1599 as residues: Arg-1 to Cys-11, Arg-18 to Arg-25, Glu-83 to Glu-88, Gly-108 to Lys-113.
841167	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1600 as residues: Arg-16 to Asp-22.
841170	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1601 as residues: Ala-1 to Ala-14, Ala-37 to Asp-45, Thr-55 to Leu-62, Glu-76 to Gly-82, Ile-101 to Gly-110, Pro-119 to Gly-127, Pro-129 to Asp-142, Lys-196 to Ser-210, Pro-216 to Tyr-246.
841173	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1602 as residues: Arg-52 to Gln-57, Asp-181 to Gly-187, Ser-260 to Val-271, Lys-285 to Asp-290.
841178	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1604 as residues: Ser-1 to Ala-9, Ala-14 to Ile-30, Pro-41 to Ser-50, Asn-56 to Arg-63, Asp-95 to Lys-102, Pro-126 to Ser-132.
841181	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1606 as residues: Thr-3 to Arg-12.
841182	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1607 as residues: Gly-12 to Gln-26, Cys-34 to Gly-49, Glu-86 to Tyr-93, Phe-103 to Thr-139, Asp-145 to Gln-153, Tyr-167 to Arg-176, Ser-192 to Gly-200, Ala-219 to Gly-226, Glu-234 to Trp-242.
841187	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1609 as residues: Glu-1 to Gly-15, Pro-23 to Val-48, Pro-58 to Glu-63, Thr-79 to Trp-91, Asn-203 to Lys-213.
841188	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1610 as residues: Arg-1 to Gly-7, Ile-92 to Tyr-98, Arg-153 to Gly-159, Ala-319 to Ser-324, Lys-350 to Glu-359.
841189	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1611 as residues: Arg-13 to Ala-21, Thr-29 to Arg-34, Glu-41 to Ala-50, Ser-65 to Glu-71, Glu-108 to Glu-117, Ile-144 to Arg-154, Gly-159 to His-186, Lys-189 to Tyr-197.
841192	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1612 as residues: Gln-56 to Leu-63, Gln-188 to Lys-193, His-200 to Gly-205, Leu-208 to Asn-215, Thr-358 to Lys-367, Lys-369 to Gln-377, His-426 to Arg-431, Tyr-437 to Glu-446, Glu-459 to Pro-476.
841194	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1613 as residues: Phe-54 to Ser-59, Thr-63 to Asp-69.
841195	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1614 as residues:

	His-1 to Gln-6. Ala-66 to Gly-79. Leu-88 to Asp-95. Glu-121 to Ile-126. Pro-140 to Pro-147. Ile-173 to Trp-180. Asn-195 to Tyr-206.
841198	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1615 as residues: Gln-29 to Arg-34. Thr-65 to Thr-76. Arg-100 to Arg-108. Leu-163 to Ala-173.
841201	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1617 as residues: Gln-3 to Lys-10. Pro-42 to Pro-50. Ser-66 to Ser-80. Glu-107 to Ala-121.
841202	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1618 as residues: Ser-11 to Trp-23, Glu-25 to Gly-32, Ala-56 to Gly-67, Glu-80 to Pro-96, Ala-166 to Leu-177, Asn-222 to His-231. Met-239 to Gly-249. Gly-318 to Pro-338.
841209	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1619 as residues: Arg-4 to Leu-27. Gln-63 to Leu-82. Pro-168 to Ser-175.
841213	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1621 as residues: Val-17 to Tyr-22. Cys-32 to Asp-49. Ser-104 to Pro-114.
841219	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1623 as residues: Leu-10 to Glu-28. Lys-54 to Gln-60.
841222	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1624 as residues: Ile-9 to Ser-14. Pro-68 to Cys-80. Ser-82 to Thr-87. Ile-136 to His-155. Lys-214 to Asn-224.
841223	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1625 as residues: Pro-12 to Glu-17.
841226	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1627 as residues: Ala-40 to Thr-52.
841227	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1628 as residues: Val-54 to Asn-60, Glu-81 to Thr-87, Asn-103 to Glu-108. Asn-163 to His-168. Ile-170 to Tyr-175.
841233	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1632 as residues: Gly-8 to Gly-20. Ser-81 to Phe-89. Leu-135 to Gln-140. Glu-156 to Tyr-168.
841234	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1633 as residues: Lys-65 to Phe-70. Asp-99 to Ile-104, Arg-122 to Asp-128, Leu-244 to Ile-250, Leu-258 to Leu-268. Ala-270 to Lys-286. Lys-310 to Asp-318, Asn-338 to Gln-344, Asp-360 to Leu-369, Lys-414 to Gln-422. Glu-435 to Arg-449, Lys-471 to Phe-476. Arg-498 to Leu-505, Ala-526 to Gly-534, Ala-536 to Pro-559. Pro-586 to Tyr-612. Tyr-624 to Tyr-629. Gln-639 to Gln-668.
841236	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1634 as residues: Lys-5 to Pro-18. Glu-24 to Ser-36. Pro-57 to Gly-63.
841239	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1636 as residues: Arg-1 to Ser-6.
841243	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1638 as residues: Gln-1 to Asp-7. Pro-26 to Ser-31. Leu-41 to Arg-46. Gly-57 to Thr-65. Lys-71 to Lys-76.
841248	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1639 as residues: Ala-8 to Thr-23, Pro-35 to Met-41, Asn-60 to Thr-65, Asn-89 to Glu-94, Pro-161 to Leu-167, Asp-184 to Trp-189. Phe-192 to Leu-206. Arg-215 to Leu-221.
841250	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1640 as residues: Asn-13 to Gly-22, Gln-24 to Lys-29, Ser-44 to Gly-51, Thr-128 to Asp-138. Glu-166 to Leu-175, Arg-187 to Ala-192, Pro-240 to Ala-256, Ser-259 to Trp-265. Met-281 to Lys-288. Leu-318 to Trp-356. Ser-379 to Thr-385. Phe-409 to Tyr-419.
841251	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1641 as residues: Arg-13 to Phe-20. His-22 to Ser-27, Gln-70 to Phe-76.
841254	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1642 as residues: Thr-1 to Lys-15. Gln-41 to Glu-46.
841263	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1643 as residues: Ser-27 to Arg-35. Leu-76 to Trp-85. Arg-112 to Thr-118.
841269	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1645 as residues: Lys-12 to Lys-19.
841273	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1647 as residues: Tyr-3 to Asn-9.
841277	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1649 as residues: Pro-55 to Ser-62. Arg-124 to Ile-129. Arg-145 to Asn-151. Asn-186 to Asn-196. Lys-267 to Lys-

	274. Arg-368 to Arg-373.
841278	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1650 as residues: Ala-6 to Pro-13. Asn-19 to Phe-24.
841279	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1651 as residues: Thr-3 to Gly-12. Arg-19 to Ala-24. Arg-30 to Gly-43. Pro-46 to Trp-51. Gly-77 to Arg-85.
841280	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1652 as residues: Ser-14 to Thr-20. Glu-44 to Gly-50. Lys-68 to Pro-76. Glu-91 to Glu-96. Ala-110 to Lys-116. Lys-124 to His-131, Gly-164 to Gln-173, Leu-191 to Asn-200. Met-215 to Ser-221. Gln-236 to Lys-258. Pro-266 to Asn-271. Pro-279 to Asp-286.
841282	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1653 as residues: Leu-3 to Lys-8.
841283	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1654 as residues: Tyr-1 to Glu-9. Ala-12 to Ser-18. His-63 to Phe-77. Asn-98 to Arg-110.
841286	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1655 as residues: Ser-13 to Arg-19. Leu-28 to Val-35. Pro-37 to Gly-57. Ser-81 to Pro-87. Ile-102 to Arg-111.
841287	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1656 as residues: Arg-1 to Ala-10. Val-23 to Phe-42. Asp-60 to Tyr-69. Pro-71 to Ser-79.
841288	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1657 as residues: Ser-4 to Pro-9. Arg-18 to Pro-26.
841291	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1658 as residues: Lys-16 to Ser-23, Gln-56 to Asp-63. Lys-137 to His-145. Glu-149 to His-156, Glu-163 to Gly-171. Pro-173 to Ala-180, Lys-189 to Ala-206. Glu-208 to Gln-214. Pro-231 to Ser-240.
841294	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1660 as residues: Gly-6 to Gly-12, Glu-19 to Pro-37. Gly-43 to Pro-55. Asp-62 to Gln-78. Arg-89 to Gln-95. Lys-99 to Arg-118. Glu-123 to Ala-139.
841301	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1663 as residues: Asn-8 to Arg-13. Gly-36 to Leu-43. Arg-53 to Cys-59.
841303	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1664 as residues: Pro-23 to Gly-35. Pro-38 to Phe-45, Pro-47 to Gly-56, Val-68 to Tyr-73. Gly-123 to Gly-135, Met-150 to Gln-164, Arg-212 to Ile-220, Arg-284 to Ile-289, Tyr-296 to His-315, Gln-325 to Ile-334. Thr-471 to Arg-476.
841304	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1665 as residues: Phe-33 to Arg-47. Asn-65 to Gly-71. Asp-95 to Gly-100, Asp-152 to Asn-163. His-223 to Gly-229.
841305	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1666 as residues: Gly-5 to Trp-19. Pro-21 to Ser-35. Pro-42 to Ser-58. Pro-64 to Asp-75.
841309	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1667 as residues: Lys-1 to Lys-6, Lys-18 to Asp-25. Thr-46 to Arg-64, His-97 to Lys-105, Glu-113 to Ala-118, Asn-126 to Gly-137, Thr-142 to Pro-147, Glu-155 to Ile-173, Ala-175 to Asn-184, Ser-188 to Glu-222, Glu-228 to Ala-242. Ala-263 to Asp-272. Thr-277 to Asp-288. Lys-293 to Met-308. Ile-348 to Gly-359, Pro-361 to Thr-386, Pro-403 to Arg-411, Asp-466 to Gln-473. Arg-479 to Thr-493. Lys-507 to Lys-513.
841314	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1668 as residues: Leu-4 to Ala-11, Phe-106 to Trp-112, Lys-204 to Ile-209. Ser-224 to Leu-236. Pro-254 to Ser-262. Phe-282 to Met-295.
841316	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1669 as residues: Pro-60 to Ser-67, Lys-86 to Ile-92. Arg-125 to Lys-130, Glu-155 to Asp-161. Glu-170 to Ser-176, Thr-181 to Val-187, Leu-198 to Asn-203. Gln-258 to Lys-263. Pro-271 to Asn-276. Phe-286 to Glu-292.
841318	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1670 as residues: Pro-14 to Trp-25. His-36 to Arg-41. Gly-66 to Tyr-73. Glu-82 to Pro-89.
841321	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1671 as residues: Asp-11 to Gly-19, Asp-26 to Val-31. Ala-52 to Asn-71. Gly-75 to Gly-81, Pro-88 to Gly-119, Pro-125 to Pro-180. Gly-187 to Gly-193. Tyr-196 to Tyr-218.
841324	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1672 as residues: Gly-45 to Val-54. Trp-67 to Gly-75. Asp-82 to Asn-90. Ala-124 to Trp-132. Thr-139 to Gln-145.

841326	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1673 as residues: Thr-45 to Asn-50, Lys-60 to Arg-73, Arg-81 to Asp-87, Lys-91 to Ser-96, Pro-105 to Gly-114, Ser-130 to Leu-136, Leu-145 to Ile-154, Cys-279 to Pro-284, Thr-321 to Glu-326, Pro-389 to Thr-398, Ala-406 to Ile-412, Ala-431 to Glu-438, Lys-495 to Glu-500, Asn-520 to Val-526, Glu-541 to Asn-547, Thr-552 to Tyr-557.
841328	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1674 as residues: Asn-64 to Ala-78, Ser-155 to Ala-169, Lys-290 to Asp-314.
841329	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1675 as residues: Leu-10 to Trp-18, Arg-21 to Leu-32, Pro-35 to Leu-55, Arg-74 to Phe-90, Pro-106 to Trp-115, Val-142 to Thr-152.
841330	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1676 as residues: Gly-14 to Ala-19, Arg-34 to Arg-41.
841333	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1677 as residues: Leu-20 to Val-26.
841335	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1679 as residues: Asn-10 to Cys-17.
841336	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1680 as residues: Lys-1 to Arg-9, Ala-57 to Met-66, Ile-70 to Glu-78, Ile-104 to Gly-125, Thr-155 to Glu-160, Pro-174 to Leu-184, Ala-200 to Arg-206, Ser-231 to Ser-255, Gln-281 to Asp-287.
841337	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1681 as residues: Arg-79 to Val-86, Ala-111 to Glu-125, Pro-148 to Met-153, Arg-180 to Leu-188, Pro-275 to Gly-296, Pro-336 to Phe-350, Gly-353 to Ser-362, Val-364 to Arg-371.
841340	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1683 as residues: Pro-39 to Ser-46.
841341	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1684 as residues: Pro-9 to Gly-23, Glu-43 to Ala-51, Ser-62 to Gly-91.
841343	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1686 as residues: Lys-49 to Gly-66, Ala-78 to Ser-85, Gly-90 to Thr-97, Arg-124 to Gly-129.
841352	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1688 as residues: Arg-37 to Leu-47, Gln-93 to Asp-112, Arg-114 to Arg-119, Arg-124 to Arg-142.
841353	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1689 as residues: Leu-23 to Thr-28, Ile-47 to Lys-56, Arg-91 to Gln-99, Gly-111 to Ser-119.
841354	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1690 as residues: Ser-36 to Arg-42.
841360	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1691 as residues: Asn-1 to Thr-11, Pro-64 to Phe-75, Phe-117 to Ile-122, Glu-124 to Arg-131, Trp-142 to Gln-147, Thr-176 to Ser-185, Arg-208 to Gly-215, Gln-238 to Ser-244, Ala-246 to Val-256, Ser-264 to Lys-272.
841405	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1693 as residues: Leu-1 to Gly-14, Arg-21 to Gln-26, Lys-62 to Val-73, His-131 to Asp-136, Glu-142 to Tyr-158, Val-162 to Gly-169, Gln-183 to Gly-189, Glu-205 to Gly-210, Gln-222 to Asp-231, Gly-237 to Tyr-244, Ala-251 to Leu-267, Asp-298 to Asn-305, Glu-332 to Lys-337, Arg-344 to Ala-349.
841526	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1694 as residues: Pro-1 to Arg-8.
841712	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1695 as residues: Gln-34 to Lys-44, Ser-70 to Leu-75, Ala-79 to Pro-89, Glu-94 to Thr-101, Gln-103 to Ser-112.
842042	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1697 as residues: Arg-64 to Glu-69, Ile-78 to Tyr-86, Asp-128 to Gly-148, Pro-166 to Pro-187, Ala-194 to Lys-239, Ala-243 to Ala-255.
842453	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1698 as residues: Gly-41 to Gly-53, Gly-65 to Arg-74.
842635	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1699 as residues: Cys-2 to Asp-11, Lys-39 to Phe-55, Tyr-72 to Trp-78, Thr-154 to Lys-164, Ser-191 to Lys-203, Asp-218 to Asp-223.
842927	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1700 as residues: Pro-8 to Trp-14, Gly-33 to Glu-48, Arg-58 to Lys-67, Thr-76 to Gln-96, Ala-98 to Ser-118, Cys-

	193 to Thr-201. Leu-225 to Trp-232. Asp-256 to Phe-262.
843237	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1703 as residues: His-1 to Gly-14. Leu-36 to Ser-41. Gln-45 to Arg-59. Gly-66 to Arg-91, Lys-104 to Trp-113. Arg-143 to Leu-148. Val-172 to Val-181. Pro-235 to Lys-242.
843381	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1704 as residues: Arg-9 to Arg-14. Gly-27 to Cys-32. Ser-53 to Leu-61. Ala-66 to Phe-71.
843823	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1706 as residues: Asp-11 to Tyr-16.
844056	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1707 as residues: Lys-145 to Thr-159. Ser-167 to Lys-176. Asn-216 to Lys-224.
844344	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1709 as residues: Gly-4 to Asp-9. Glu-23 to Lys-31. Asn-38 to Tyr-47.
844368	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1710 as residues: His-5 to Gly-15. Pro-97 to Cys-103.
844408	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1711 as residues: Thr-49 to Gln-60.
844867	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1713 as residues: Ile-49 to Thr-60.
845281	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1715 as residues: Gly-5 to Arg-12.
845288	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1716 as residues: Ala-1 to Gly-6. Ala-8 to Val-15. Ala-159 to Pro-164.
845750	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1717 as residues: Arg-1 to Thr-9.
845809	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1718 as residues: Glu-9 to Arg-14, Thr-19 to Arg-27, Asp-48 to Ile-57, Gln-63 to Leu-75, Cys-89 to Thr-104, Gly-106 to Pro-113. Gly-127 to Thr-133. Arg-144 to Asn-157. Ile-179 to Arg-199.
846077	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1719 as residues: Pro-11 to Trp-18. Cys-59 to Pro-68. Thr-77 to Glu-86. Arg-94 to Asn-102.
HPRTI05R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1721 as residues: Pro-22 to Tyr-34.
HPDED94R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1724 as residues: Gly-1 to Glu-6.
HDTGH11R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1725 as residues: Thr-32 to Met-37.
HTEJR60R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1726 as residues: Ala-1 to Ser-6.
HAGGY86R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1727 as residues: Leu-25 to Trp-40. Val-49 to His-56. Leu-60 to Asn-67.
HPIAU47R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1728 as residues: Glu-88 to Leu-93.
HCGAD89R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1729 as residues: Glu-30 to Asp-45.
HAPOD39R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1730 as residues: Tyr-21 to Ala-28. Ser-74 to Gly-81.
HDRAA14R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1733 as residues: Ala-1 to Pro-8. Ala-10 to Val-16. Pro-43 to Leu-52.
HSLCA48R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1734 as residues: Gln-26 to Leu-31.
HMQDF20R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1736 as residues: Phe-33 to Ala-43. His-86 to Ser-93.
HCHOH06R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1737 as residues: Gly-4 to Lys-10. Arg-17 to Glu-24. Gln-36 to Glu-41. Arg-61 to Arg-76.
HLDRN91R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1740 as residues: Arg-22 to Gln-27. Ser-33 to Val-38. Lys-46 to Gly-57. Gln-92 to Gly-97.
HE6GO78R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1743 as residues:

	Ser-3 to Trp-12.
HSYBY17R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1745 as residues: Gln-30 to Pro-36.
HPJCS07R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1746 as residues: Tyr-25 to Phe-32.
HFKFH08R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1748 as residues: Arg-2 to Gln-8. Val-49 to Asn-54. Gln-58 to Tyr-64.
HPIBI27R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1750 as residues: Glu-17 to Asp-22. Pro-46 to Arg-52. Pro-75 to Asp-84.
HSKJG37R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1751 as residues: Leu-66 to Gly-72. Asp-89 to Pro-97. Thr-104 to Leu-110.
H2LAZ24R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1752 as residues: Pro-20 to Ala-26, Ser-107 to Ala-113. Asp-129 to Gly-135, Thr-139 to Asp-146, Ser-152 to Arg-168. Glu-173 to Pro-180.
H2LAS11R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1756 as residues: Pro-20 to Ser-25. Lys-67 to Phe-76, Pro-78 to Asn-86. Asp-100 to Gly-108, Arg-116 to Gly-122, Glu-153 to Ala-158.
HADMC73R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1758 as residues: Ala-1 to Tyr-9.
HDTDX66R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1760 as residues: Met-2 to Leu-9. Lys-11 to Pro-28. Asp-57 to Leu-68. Gln-81 to Ser-96. Ser-98 to Arg-106.
HLPBB39R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1761 as residues: Cys-27 to Lys-33. Thr-35 to Cys-41.
HKABU38R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1763 as residues: Pro-1 to Pro-11, Ala-17 to Lys-25, Asp-54 to Leu-59, Thr-66 to Arg-76, Arg-90 to Pro-107, Pro-139 to Glu-146.
HATAI03R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1765 as residues: Phe-1 to Asn-6.
HCEDE25R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1766 as residues: Ala-6 to Thr-13.
H2LAO77R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1770 as residues: Ala-16 to Pro-30. Thr-44 to Val-57. Lys-75 to Gly-80. Asp-92 to Leu-102. Ala-113 to Tyr-120.
HNTRW15R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1771 as residues: Met-3 to Lys-9. Ala-16 to Trp-37.
HULBL38R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1773 as residues: Cys-1 to Glu-6. Asp-52 to Asp-65. Lys-82 to Pro-88.
HNTBK49R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1774 as residues: Pro-40 to Gly-45.
HBAFS48R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1775 as residues: Pro-1 to Glu-18. Pro-37 to Met-44.
HOHBU75R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1777 as residues: His-24 to Gly-29. Glu-32 to Asp-37. Gly-47 to Pro-60.
HSLBA61R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1779 as residues: Asn-37 to Thr-42.
HKAKR61R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1782 as residues: Arg-1 to Thr-7.
H2LAD40R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1785 as residues: Trp-13 to Asp-19. Cys-29 to Gln-34. Ala-41 to Arg-52. Gly-54 to Gln-59. Arg-69 to Pro-78.
H2MBU27R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1788 as residues: Asp-3 to Lys-9. Arg-88 to Gln-95.
HDSAH53R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1789 as residues: Asp-7 to Lys-13.
HAIDF69R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1790 as residues: Gln-13 to Pro-22.
HTWJC11R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1793 as residues: Pro-27 to Val-32.

HKAEC40R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1794 as residues: Lys-86 to Lys-91.
HCFNM70R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1795 as residues: Thr-19 to Lys-24.
HKBAB93R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1796 as residues: Lys-9 to Tyr-26. Arg-48 to Lys-53. Ser-68 to Thr-75. Ala-84 to Leu-89.
HMAEA94R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1800 as residues: His-60 to Asp-69. Phe-87 to Ala-93.
HMWEA08R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1801 as residues: Met-3 to Thr-8. Tyr-33 to Gly-38. Lys-54 to Glu-65.
HRACC09R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1803 as residues: Lys-7 to Trp-18.
HOEEC67R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1804 as residues: Lys-24 to Glu-31.
HPFEA40R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1805 as residues: Arg-4 to Ile-20.
HHECI89R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1807 as residues: Ala-1 to Arg-12. Pro-22 to Met-28. Glu-53 to Thr-61. Gly-90 to Ile-97.
HSDFV03R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1808 as residues: Ser-18 to Phe-24. Pro-40 to Thr-46.
HTXPN01R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1809 as residues: Lys-19 to Glu-28.
HACBH95R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1813 as residues: Pro-43 to Gly-51.
HACBY16R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1814 as residues: Arg-1 to Glu-16.
HAHAD34R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1816 as residues: Gly-13 to Ala-21.
HAJAN69R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1817 as residues: Gly-1 to Gly-22. Pro-61 to Ala-70.
HAPPR17R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1819 as residues: Asn-8 to Met-13. Asp-15 to Met-21.
HBGBE20R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1824 as residues: Arg-28 to Leu-33.
HBMVT43R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1828 as residues: Pro-1 to Asn-8.
HCFLN25R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1830 as residues: Gly-16 to Trp-21. Pro-24 to Leu-32.
HCQAW59R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1831 as residues: Gly-1 to Gly-8. Pro-11 to Asn-21.
HDPMA46R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1832 as residues: Glu-14 to Gly-32. Pro-61 to Gly-66.
HDTAQ26R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1833 as residues: Ser-1 to Gly-7.
HDTLD39R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1835 as residues: Thr-14 to Ser-44.
HE2PO63R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1836 as residues: Phe-11 to Lys-17. Gly-36 to Gly-43.
HELHK95R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1838 as residues: Pro-20 to Pro-28.
HETIB72R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1840 as residues: Gln-1 to Glu-9.
HFIYH65R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1842 as residues: Ala-2 to His-8. Gly-26 to Cys-32.
HKIXO47R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1848 as residues: Ala-1 to Arg-8. Val-12 to Lys-25.

HLWBC80R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1851 as residues: Arg-72 to Gly-80. Leu-86 to Phe-92.
HLYAV50R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1852 as residues: Asp-1 to Gly-6. Gly-44 to Arg-50.
HMEKY67R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1853 as residues: Arg-12 to Phe-24. Pro-32 to Ser-43.
HOUDQ92R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1858 as residues: Arg-1 to Cys-7.
HPIAF72R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1860 as residues: Gln-1 to Arg-17. Ala-25 to Pro-32.
HPIAU01R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1861 as residues: Pro-9 to Gly-18.
HPIAU73R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1862 as residues: Arg-9 to Gln-35. Arg-51 to Gly-56.
HPIAW19R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1863 as residues: Ala-16 to Arg-26. Thr-67 to Asn-76.
HPIAZ19R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1864 as residues: Glu-1 to His-6. Gly-19 to Trp-31.
HPIBA31R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1865 as residues: Glu-1 to His-6. Gly-19 to Trp-31.
HPIBS06R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1866 as residues: Pro-25 to Lys-31.
HPICB65R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1867 as residues: Ser-2 to Gln-10. Val-26 to Lys-34. Asp-52 to Glu-58. Arg-93 to Trp-102.
HPJBF22R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1868 as residues: Glu-1 to His-6. Gly-19 to Trp-31.
HPJBZ81R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1869 as residues: Ser-18 to Gly-23.
HSDJK57R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1873 as residues: Thr-53 to Arg-64.
HSIFY54R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1874 as residues: Phe-35 to Asp-58. Phe-92 to Phe-105.
HUFAT72R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1878 as residues: Pro-16 to Phe-25.
HULAI70R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1879 as residues: Pro-13 to Gly-22. Arg-45 to Cys-50.
HTGFW12R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1880 as residues: Pro-6 to Gly-16. Arg-24 to Pro-32.

The present invention encompasses polypeptides comprising, or alternatively consisting of, an epitope of the polypeptide sequence shown in SEQ ID NO:Y, or an epitope of the polypeptide sequence encoded by the cDNA in the related cDNA clone contained in a deposited library or encoded by a polynucleotide that hybridizes to the complement of an epitope encoding sequence of SEQ ID NO:X, or an epitope encoding sequence contained in the deposited cDNA clone under stringent hybridization conditions, or alternatively, under lower stringency hybridization conditions, as defined supra. The present invention further encompasses polynucleotide sequences encoding an epitope of a polypeptide sequence of the invention (such as, for example, the sequence disclosed in SEQ ID NO:X), polynucleotide sequences of the complementary strand of a polynucleotide sequence encoding an epitope of the invention, and polynucleotide sequences which hybridize to this complementary strand under stringent hybridization conditions or alternatively, under lower stringency hybridization conditions, as defined supra.

The term "epitopes," as used herein, refers to portions of a polypeptide having antigenic or immunogenic activity in an animal, preferably a mammal, and most preferably in a human. In a preferred embodiment, the present invention encompasses a polypeptide comprising an epitope, as well as the polynucleotide encoding this polypeptide. An "immunogenic epitope," as used herein, is defined as a portion of a protein that elicits an antibody response in an animal, as determined by any method known in the art, for example, by the methods for generating antibodies described infra. (See, for example, Geysen et al., Proc. Natl. Acad. Sci. USA 81:3998- 4002 (1983)). The term "antigenic epitope," as used herein, is defined as a portion of a protein to which an antibody can immunospecifically bind its antigen as determined by any method well known in the art, for example, by the immunoassays described herein. Immunospecific binding excludes non-specific binding but does not necessarily exclude cross- reactivity with other antigens. Antigenic epitopes need not necessarily be immunogenic.

Fragments which function as epitopes may be produced by any conventional means. (See, e.g., Houghten. R. A., Proc. Natl. Acad. Sci. USA 82:5131-5135 (1985) further described in U.S. Patent No. 4,631,211.)

In the present invention, antigenic epitopes preferably contain a sequence of at least 4, at least 5, at least 6, at least 7, more preferably at least 8, at least 9, at least 10, at least 11, at least 12, at least 13, at least 14, at least 15, at least 20, at least 25, at least 30, at least 40, at least 50, and, most preferably, between about 15 to about 30 amino acids. Preferred polypeptides comprising immunogenic or antigenic epitopes are at least 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, or 100 amino acid residues in length. Additional non-exclusive preferred antigenic epitopes include the antigenic epitopes disclosed herein, as well as portions thereof. Antigenic epitopes are useful, for example, to raise antibodies, including monoclonal antibodies, that specifically bind the epitope. Preferred antigenic epitopes include the antigenic epitopes disclosed herein, as well as any combination of two, three, four, five or more of these antigenic epitopes. Antigenic epitopes can be used as the target molecules in immunoassays. (See, for instance, Wilson et al., Cell 37:767-778 (1984); Sutcliffe et al., Science 219:660-666 (1983)).

Similarly, immunogenic epitopes can be used, for example, to induce antibodies according to methods well known in the art. (See, for instance. Sutcliffe et al., supra; Wilson et al., supra; Chow et al., Proc. Natl. Acad. Sci. USA 82:910-914; and Bittle et al., J. Gen. Virol. 66:2347-2354 (1985). Preferred immunogenic epitopes include the immunogenic epitopes disclosed herein, as well as any combination of two, three, four, five or more of these immunogenic epitopes. The polypeptides comprising one or more immunogenic epitopes may be presented for eliciting an antibody response together with a carrier protein, such as an albumin, to an animal system (such as rabbit or mouse), or, if the polypeptide is of sufficient length (at least about 25 amino acids), the polypeptide may be presented without a carrier. However, immunogenic epitopes comprising as few as 8 to 10 amino acids have been shown to be sufficient to raise antibodies capable of binding to, at the very least. linear epitopes in a denatured polypeptide (e.g.. in Western blotting).

Epitope-bearing polypeptides of the present invention may be used to induce antibodies according to methods well known in the art including, but not limited to, in vivo immunization, in vitro immunization, and phage display methods. See, e.g., Sutcliffe et al., supra; Wilson et al., supra, and Bittle et al., J. Gen. Virol., 66:2347-2354 (1985). If in vivo immunization is used, animals may be immunized with free peptide; however, anti-peptide antibody titer may be boosted by coupling the peptide to a macromolecular carrier, such as keyhole limpet hemacyanin (KLH) or tetanus toxoid. For instance, peptides containing cysteine residues may be coupled to a carrier using a linker such as maleimidobenzoyl- N-hydroxysuccinimide ester (MBS), while other peptides may be coupled to carriers using a more general linking agent such as glutaraldehyde. Animals such as rabbits, rats and mice are immunized with either free or carrier- coupled peptides, for instance, by intraperitoneal and/or intradermal injection of emulsions containing about 100 µg of peptide or carrier protein and Freund's adjuvant or any other adjuvant known for stimulating an immune response. Several booster injections may be needed, for instance, at intervals of about two weeks, to provide a useful titer of anti-peptide antibody which can be detected, for example, by ELISA assay using free peptide adsorbed to a solid surface. The titer of anti-peptide antibodies in serum from an immunized animal may be increased by selection of anti-peptide antibodies, for instance, by adsorption to the peptide on a solid support and elution of the selected antibodies according to methods well known in the art.

As one of skill in the art will appreciate, and as discussed above, the polypeptides of the present invention , and immunogenic and/or antigenic epitope fragments thereof can be fused to other polypeptide sequences. For example, the polypeptides of the present invention may be fused with the constant domain of immunoglobulins (IgA, IgE, IgG, IgM), or portions thereof (CH1, CH2, CH3, or any combination thereof and portions thereof) resulting in chimeric polypeptides. Such fusion proteins may facilitate purification and may increase half-life in vivo. This has been shown for chimeric proteins consisting of the first two domains of the human CD4-polypeptide and various domains of the constant regions of the heavy or light

chains of mammalian immunoglobulins. See, e.g., EP 394.827; Traunecker et al., Nature, 331:84-86 (1988). Enhanced delivery of an antigen across the epithelial barrier to the immune system has been demonstrated for antigens (e.g., insulin) conjugated to an FcRn binding partner such as IgG or Fc fragments (see, e.g., PCT Publications WO 96/22024 and WO 99/04813). IgG Fusion proteins that have a disulfide-linked dimeric structure due to the IgG portion desulfide bonds have also been found to be more efficient in binding and neutralizing other molecules than monomeric polypeptides or fragments thereof alone. See, e.g., Fountoulakis et al., J. Biochem., 270:3958-3964 (1995).

Similarly, EP-A-O 464 533 (Canadian counterpart 2045869) discloses fusion proteins comprising various portions of constant region of immunoglobulin molecules together with another human protein or part thereof. In many cases, the Fc part in a fusion protein is beneficial in therapy and diagnosis, and thus can result in, for example, improved pharmacokinetic properties. (EP-A 0232 262.) Alternatively, deleting the Fc part after the fusion protein has been expressed, detected, and purified, may be desired. For example, the Fc portion may hinder therapy and diagnosis if the fusion protein is used as an antigen for immunizations. In drug discovery, for example, human proteins, such as hIL-5, have been fused with Fc portions for the purpose of high-throughput screening assays to identify antagonists of hIL-5. (See, D. Bennett et al., J. Molecular Recognition 8:52-58 (1995); K. Johanson et al., J. Biol. Chem. 270:9459-9471 (1995).)

Moreover, the polypeptides of the present invention can be fused to marker sequences, such as a peptide which facilitates purification of the fused polypeptide. In preferred embodiments, the marker amino acid sequence is a hexa-histidine peptide, such as the tag provided in a pQE vector (QIAGEN, Inc., 9259 Eton Avenue, Chatsworth, CA, 91311), among others, many of which are commercially available. As described in Gentz et al., Proc. Natl. Acad. Sci. USA 86:821-824 (1989), for instance, hexa-histidine provides for convenient purification of the fusion protein. Another peptide tag useful for purification, the "HA" tag, corresponds to an epitope

derived from the influenza hemagglutinin protein. (Wilson et al., Cell 37:767 (1984).)

Thus, any of these above fusions can be engineered using the polynucleotides or the polypeptides of the present invention.

Nucleic acids encoding the above epitopes can also be recombined with a gene of interest as an epitope tag (e.g., the hemagglutinin ("HA") tag or flag tag) to aid in detection and purification of the expressed polypeptide. For example, a system described by Janknecht et al. allows for the ready purification of non-denatured fusion proteins expressed in human cell lines (Janknecht et al., Proc. Natl. Acad. Sci. USA 88:8972- 897 (1991)). In this system, the gene of interest is subcloned into a vaccinia recombination plasmid such that the open reading frame of the gene is translationally fused to an amino-terminal tag consisting of six histidine residues. The tag serves as a matrix binding domain for the fusion protein. Extracts from cells infected with the recombinant vaccinia virus are loaded onto Ni2+ nitriloacetic acid-agarose column and histidine-tagged proteins can be selectively eluted with imidazole-containing buffers.

Additional fusion proteins of the invention may be generated through the techniques of gene-shuffling, motif-shuffling, exon-shuffling, and/or codon-shuffling (collectively referred to as "DNA shuffling"). DNA shuffling may be employed to modulate the activities of polypeptides of the invention, such methods can be used to generate polypeptides with altered activity, as well as agonists and antagonists of the polypeptides. See, generally, U.S. Patent Nos. 5,605,793; 5,811,238; 5,830,721; 5,834,252; and 5,837,458, and Patten et al., Curr. Opinion Biotechnol. 8:724-33 (1997); Harayama, Trends Biotechnol. 16(2):76-82 (1998); Hansson, et al., J. Mol. Biol. 287:265-76 (1999); and Lorenzo and Blasco, Biotechniques 24(2):308- 13 (1998) (each of these patents and publications are hereby incorporated by reference in its entirety). In one embodiment, alteration of polynucleotides corresponding to SEQ ID NO:X and the polypeptides encoded by these polynucleotides may be achieved by DNA shuffling. DNA shuffling involves the assembly of two or more DNA segments by homologous or site-specific recombination to generate variation in the

polynucleotide sequence. In another embodiment. polynucleotides of the invention, or the encoded polypeptides. may be altered by being subjected to random mutagenesis by error-prone PCR, random nucleotide insertion or other methods prior to recombination. In another embodiment, one or more components, motifs, sections, parts. domains, fragments, etc., of a polynucleotide encoding a polypeptide of the invention may be recombined with one or more components, motifs, sections, parts, domains, fragments, etc. of one or more heterologous molecules.

As discussed herein, any polypeptide of the present invention can be used to generate fusion proteins. For example, the polypeptide of the present invention, when fused to a second protein, can be used as an antigenic tag. Antibodies raised against the polypeptide of the present invention can be used to indirectly detect the second protein by binding to the polypeptide. Moreover, because secreted proteins target cellular locations based on trafficking signals, polypeptides of the present invention which are shown to be secreted can be used as targeting molecules once fused to other proteins.

Examples of domains that can be fused to polypeptides of the present invention include not only heterologous signal sequences, but also other heterologous functional regions. The fusion does not necessarily need to be direct, but may occur through linker sequences.

In certain preferred embodiments, proteins of the invention comprise fusion proteins wherein the polypeptides are N and/or C- terminal deletion mutants. In preferred embodiments, the application is directed to nucleic acid molecules at least 80%, 85%, 90%, 95%, 96%, 97%, 98% or 99% identical to the nucleic acid sequences encoding polypeptides having the amino acid sequence of the specific N- and C-terminal deletions mutants. Polynucleotides encoding these polypeptides are also encompassed by the invention.

Moreover, fusion proteins may also be engineered to improve characteristics of the polypeptide of the present invention. For instance, a region of additional amino acids, particularly charged amino acids, may be added to the N-terminus of the polypeptide to improve stability and persistence during purification from the host cell

or subsequent handling and storage. Also, peptide moieties may be added to the polypeptide to facilitate purification. Such regions may be removed prior to final preparation of the polypeptide. The addition of peptide moieties to facilitate handling of polypeptides are familiar and routine techniques in the art.

Vectors, Host Cells, and Protein Production

The present invention also relates to vectors containing the polynucleotide of the present invention, host cells, and the production of polypeptides by recombinant techniques. The vector may be, for example, a phage, plasmid, viral, or retroviral vector. Retroviral vectors may be replication competent or replication defective. In the latter case, viral propagation generally will occur only in complementing host cells.

The polynucleotides of the invention may be joined to a vector containing a selectable marker for propagation in a host. Generally, a plasmid vector is introduced in a precipitate, such as a calcium phosphate precipitate, or in a complex with a charged lipid. If the vector is a virus, it may be packaged in vitro using an appropriate packaging cell line and then transduced into host cells.

The polynucleotide insert should be operatively linked to an appropriate promoter, such as the phage lambda PL promoter, the E. coli lac, trp, phoA and tac promoters, the SV40 early and late promoters and promoters of retroviral LTRs, to name a few. Other suitable promoters will be known to the skilled artisan. The expression constructs will further contain sites for transcription initiation, termination, and, in the transcribed region, a ribosome binding site for translation. The coding portion of the transcripts expressed by the constructs will preferably include a translation initiating codon at the beginning and a termination codon (UAA, UGA or UAG) appropriately positioned at the end of the polypeptide to be translated.

As indicated, the expression vectors will preferably include at least one selectable marker. Such markers include dihydrofolate reductase, G418 or neomycin resistance for eukaryotic cell culture and tetracycline, kanamycin or ampicillin resistance genes for culturing in E. coli and other bacteria. Representative examples

of appropriate hosts include, but are not limited to, bacterial cells, such as E. coli, Streptomyces and Salmonella typhimurium cells; fungal cells, such as yeast cells (e.g., Saccharomyces cerevisiae or Pichia pastoris (ATCC Accession No. 201178)); insect cells such as Drosophila S2 and Spodoptera Sf9 cells; animal cells such as CHO, COS, 293, and Bowes melanoma cells; and plant cells. Appropriate culture mediums and conditions for the above-described host cells are known in the art.

Among vectors preferred for use in bacteria include pQE70, pQE60 and pQE-9, available from QIAGEN, Inc.; pBluescript vectors, Phagescript vectors, pNH8A, pNH16a, pNH18A, pNH46A, available from Stratagene Cloning Systems, Inc.; and ptrc99a, pKK223-3, pKK233-3, pDR540, pRIT5 available from Pharmacia Biotech, Inc. Among preferred eukaryotic vectors are pWLNEO, pSV2CAT, pOG44, pXT1 and pSG available from Stratagene; and pSVK3, pBPV, pMSG and pSVL available from Pharmacia. Preferred expression vectors for use in yeast systems include, but are not limited to pYES2, pYD1, pTEF1/Zeo, pYES2/GS, pPICZ, pGAPZ, pGAPZalph, pPIC9, pPIC3.5, pHIL-D2, pHIL-S1, pPIC3.5K, pPIC9K, and PAO815 (all available from Invitrogen, Carlbad, CA). Other suitable vectors will be readily apparent to the skilled artisan.

Introduction of the construct into the host cell can be effected by calcium phosphate transfection, DEAE-dextran mediated transfection, cationic lipid-mediated transfection, electroporation, transduction, infection, or other methods. Such methods are described in many standard laboratory manuals, such as Davis et al., Basic Methods In Molecular Biology (1986). It is specifically contemplated that the polypeptides of the present invention may in fact be expressed by a host cell lacking a recombinant vector.

A polypeptide of this invention can be recovered and purified from recombinant cell cultures by well-known methods including ammonium sulfate or ethanol precipitation, acid extraction, anion or cation exchange chromatography, phosphocellulose chromatography, hydrophobic interaction chromatography, affinity chromatography, hydroxylapatite chromatography and lectin chromatography. Most

preferably, high performance liquid chromatography ("HPLC") is employed for purification.

Polypeptides of the present invention can also be recovered from: products purified from natural sources, including bodily fluids, tissues and cells, whether directly isolated or cultured; products of chemical synthetic procedures; and products produced by recombinant techniques from a prokaryotic or eukaryotic host, including, for example, bacterial, yeast, higher plant, insect, and mammalian cells. Depending upon the host employed in a recombinant production procedure, the polypeptides of the present invention may be glycosylated or may be non-glycosylated. In addition, polypeptides of the invention may also include an initial modified methionine residue, in some cases as a result of host-mediated processes. Thus, it is well known in the art that the N-terminal methionine encoded by the translation initiation codon generally is removed with high efficiency from any protein after translation in all eukaryotic cells. While the N-terminal methionine on most proteins also is efficiently removed in most prokaryotes, for some proteins, this prokaryotic removal process is inefficient, depending on the nature of the amino acid to which the N-terminal methionine is covalently linked.

In one embodiment, the yeast *Pichia pastoris* is used to express polypeptides of the invention in a eukaryotic system. *Pichia pastoris* is a methylotrophic yeast which can metabolize methanol as its sole carbon source. A main step in the methanol metabolization pathway is the oxidation of methanol to formaldehyde using O_2. This reaction is catalyzed by the enzyme alcohol oxidase. In order to metabolize methanol as its sole carbon source, *Pichia pastoris* must generate high levels of alcohol oxidase due, in part, to the relatively low affinity of alcohol oxidase for O_2. Consequently, in a growth medium depending on methanol as a main carbon source, the promoter region of one of the two alcohol oxidase genes (*AOX1*) is highly active. In the presence of methanol, alcohol oxidase produced from the *AOX1* gene comprises up to approximately 30% of the total soluble protein in *Pichia pastoris*. *See*, Ellis, S.B., *et al.*, *Mol. Cell. Biol.* 5:1111-21 (1985); Koutz, P.J. *et al.*, *Yeast*

5:167-77 (1989); Tschopp, J.F., *et al.*, *Nucl. Acids Res.* 15:3859-76 (1987). Thus, a heterologous coding sequence, such as, for example, a polynucleotide of the present invention, under the transcriptional regulation of all or part of the *AOX1* regulatory sequence is expressed at exceptionally high levels in *Pichia* yeast grown in the presence of methanol.

In one example, the plasmid vector pPIC9K is used to express DNA encoding a polypeptide of the invention, as set forth herein, in a *Pichea* yeast system essentially as described in "*Pichia* Protocols: Methods in Molecular Biology," D.R. Higgins and J. Cregg, eds. The Humana Press, Totowa, NJ, 1998. This expression vector allows expression and secretion of a polypeptide of the invention by virtue of the strong *AOX1* promoter linked to the *Pichia pastoris* alkaline phosphatase (PHO) secretory signal peptide (i.e., leader) located upstream of a multiple cloning site.

Many other yeast vectors could be used in place of pPIC9K, such as, pYES2, pYD1, pTEF1/Zeo, pYES2/GS, pPICZ, pGAPZ, pGAPZalpha, pPIC9, pPIC3.5, pHIL-D2, pHIL-S1, pPIC3.5K, and PAO815, as one skilled in the art would readily appreciate, as long as the proposed expression construct provides appropriately located signals for transcription, translation, secretion (if desired), and the like, including an in-frame AUG as required.

In another embodiment, high-level expression of a heterologous coding sequence, such as, for example, a polynucleotide of the present invention, may be achieved by cloning the heterologous polynucleotide of the invention into an expression vector such as, for example, pGAPZ or pGAPZalpha, and growing the yeast culture in the absence of methanol.

In addition to encompassing host cells containing the vector constructs discussed herein, the invention also encompasses primary, secondary, and immortalized host cells of vertebrate origin, particularly mammalian origin, that have been engineered to delete or replace endogenous genetic material (e.g., coding sequence), and/or to include genetic material (e.g., heterologous polynucleotide sequences) that is operably associated with polynucleotides of the invention, and

which activates, alters, and/or amplifies endogenous polynucleotides. For example, techniques known in the art may be used to operably associate heterologous control regions (e.g., promoter and/or enhancer) and endogenous polynucleotide sequences via homologous recombination (see, e.g., U.S. Patent No. 5,641,670, issued June 24, 1997; International Publication No. WO 96/29411, published September 26, 1996; International Publication No. WO 94/12650, published August 4, 1994; Koller et al., Proc. Natl. Acad. Sci. USA 86:8932-8935 (1989); and Zijlstra et al., Nature 342:435-438 (1989), the disclosures of each of which are incorporated by reference in their entireties).

In addition, polypeptides of the invention can be chemically synthesized using techniques known in the art (e.g., see Creighton, 1983, Proteins: Structures and Molecular Principles, W.H. Freeman & Co., N.Y., and Hunkapiller et al., *Nature*, 310:105-111 (1984)). For example, a polypeptide corresponding to a fragment of a polypeptide can be synthesized by use of a peptide synthesizer. Furthermore, if desired, nonclassical amino acids or chemical amino acid analogs can be introduced as a substitution or addition into the polypeptide sequence. Non-classical amino acids include, but are not limited to, to the D-isomers of the common amino acids, 2,4-diaminobutyric acid, a-amino isobutyric acid, 4-aminobutyric acid, Abu, 2-amino butyric acid, g-Abu, e-Ahx, 6-amino hexanoic acid, Aib, 2-amino isobutyric acid, 3-amino propionic acid, ornithine, norleucine, norvaline, hydroxyproline, sarcosine, citrulline, homocitrulline, cysteic acid, t-butylglycine, t-butylalanine, phenylglycine, cyclohexylalanine, b-alanine, fluoro-amino acids, designer amino acids such as b-methyl amino acids, Ca-methyl amino acids, Na-methyl amino acids, and amino acid analogs in general. Furthermore, the amino acid can be D (dextrorotary) or L (levorotary).

Non-naturally occurring variants may be produced using art-known mutagenesis techniques, which include, but are not limited to oligonucleotide mediated mutagenesis, alanine scanning, PCR mutagenesis, site directed mutagenesis (*see, e.g.*, Carter *et al., Nucl. Acids Res. 13*:4331 (1986); and Zoller *et al., Nucl. Acids Res. 10*:6487 (1982)), cassette mutagenesis (*see, e.g.*, Wells *et al., Gene 34*:315

(1985)), restriction selection mutagenesis (*see. e.g.*, Wells *et al.*. *Philos. Trans. R. Soc. London SerA 317*:415 (1986)).

The invention additionally, encompasses polypeptides of the present invention which are differentially modified during or after translation. e.g., by glycosylation, acetylation, phosphorylation, amidation, derivatization by known protecting/blocking groups, proteolytic cleavage, linkage to an antibody molecule or other cellular ligand, etc. Any of numerous chemical modifications may be carried out by known techniques, including but not limited, to specific chemical cleavage by cyanogen bromide, trypsin, chymotrypsin, papain, V8 protease, $NaBH_4$; acetylation, formylation, oxidation, reduction; metabolic synthesis in the presence of tunicamycin; etc.

Additional post-translational modifications encompassed by the invention include, for example, e.g., N-linked or O-linked carbohydrate chains, processing of N-terminal or C-terminal ends), attachment of chemical moieties to the amino acid backbone, chemical modifications of N-linked or O-linked carbohydrate chains, and addition or deletion of an N-terminal methionine residue as a result of procaryotic host cell expression. The polypeptides may also be modified with a detectable label, such as an enzymatic, fluorescent, isotopic or affinity label to allow for detection and isolation of the protein.

Also provided by the invention are chemically modified derivatives of the polypeptides of the invention which may provide additional advantages such as increased solubility, stability and circulating time of the polypeptide, or decreased immunogenicity (see U.S. Patent No. 4,179,337). The chemical moieties for derivitization may be selected from water soluble polymers such as polyethylene glycol, ethylene glycol/propylene glycol copolymers, carboxymethylcellulose, dextran, polyvinyl alcohol and the like. The polypeptides may be modified at random positions within the molecule, or at predetermined positions within the molecule and may include one, two, three or more attached chemical moieties.

The polymer may be of any molecular weight, and may be branched or unbranched. For polyethylene glycol, the preferred molecular weight is between

about 1 kDa and about 100 kDa (the term "about" indicating that in preparations of polyethylene glycol, some molecules will weigh more, some less, than the stated molecular weight) for ease in handling and manufacturing. Other sizes may be used, depending on the desired therapeutic profile (e.g., the duration of sustained release desired, the effects, if any on biological activity, the ease in handling, the degree or lack of antigenicity and other known effects of the polyethylene glycol to a therapeutic protein or analog). For example, the polyethylene glycol may have an average molecular weight of about 200; 500; 1000; 1500; 2000; 2500; 3000; 3500; 4000; 4500; 5000; 5500; 6000; 6500; 7000; 7500; 8000; 8500; 9000; 9500; 10,000; 10,500; 11,000; 11,500; 12,000; 12,500; 13,000; 13,500; 14,000; 14,500; 15,000; 15,500; 16,000; 16,500; 17,000; 17,500; 18,000; 18,500; 19,000; 19,500; 20,000; 25,000; 30,000; 35,000; 40,000; 50,000; 55,000; 60,000; 65,000; 70,000; 75,000; 80,000; 85,000; 90,000; 95,000; or 100,000 kDa.

As noted above, the polyethylene glycol may have a branched structure. Branched polyethylene glycols are described, for example, in U.S. Patent No. 5,643,575; Morpurgo *et al., Appl. Biochem. Biotechnol. 56*:59-72 (1996); Vorobjev *et al., Nucleosides Nucleotides 18*:2745-2750 (1999); and Caliceti *et al., Bioconjug. Chem. 10*:638-646 (1999), the disclosures of each of which are incorporated herein by reference.

The polyethylene glycol molecules (or other chemical moieties) should be attached to the protein with consideration of effects on functional or antigenic domains of the protein. There are a number of attachment methods available to those skilled in the art, e.g., EP 0 401 384, herein incorporated by reference (coupling PEG to G-CSF), see also Malik et al., Exp. Hematol. 20:1028-1035 (1992) (reporting pegylation of GM-CSF using tresyl chloride). For example, polyethylene glycol may be covalently bound through amino acid residues via a reactive group, such as, a free amino or carboxyl group. Reactive groups are those to which an activated polyethylene glycol molecule may be bound. The amino acid residues having a free amino group may include lysine residues and the N-terminal amino acid residues; those having a free carboxyl group may include aspartic acid residues glutamic acid

residues and the C-terminal amino acid residue. Sulfhydryl groups may also be used as a reactive group for attaching the polyethylene glycol molecules. Preferred for therapeutic purposes is attachment at an amino group, such as attachment at the N-terminus or lysine group.

As suggested above, polyethylene glycol may be attached to proteins via linkage to any of a number of amino acid residues. For example, polyethylene glycol can be linked to a proteins via covalent bonds to lysine, histidine, aspartic acid, glutamic acid, or cysteine residues. One or more reaction chemistries may be employed to attach polyethylene glycol to specific amino acid residues (e.g., lysine, histidine, aspartic acid, glutamic acid, or cysteine) of the protein or to more than one type of amino acid residue (e.g., lysine. histidine, aspartic acid, glutamic acid, cysteine and combinations thereof) of the protein.

One may specifically desire proteins chemically modified at the N-terminus. Using polyethylene glycol as an illustration of the present composition, one may select from a variety of polyethylene glycol molecules (by molecular weight, branching, etc.), the proportion of polyethylene glycol molecules to protein (polypeptide) molecules in the reaction mix, the type of pegylation reaction to be performed, and the method of obtaining the selected N-terminally pegylated protein. The method of obtaining the N-terminally pegylated preparation (i.e., separating this moiety from other monopegylated moieties if necessary) may be by purification of the N-terminally pegylated material from a population of pegylated protein molecules. Selective proteins chemically modified at the N-terminus modification may be accomplished by reductive alkylation which exploits differential reactivity of different types of primary amino groups (lysine versus the N-terminal) available for derivatization in a particular protein. Under the appropriate reaction conditions, substantially selective derivatization of the protein at the N-terminus with a carbonyl group containing polymer is achieved.

As indicated above, pegylation of the proteins of the invention may be accomplished by any number of means. For example, polyethylene glycol may be attached to the protein either directly or by an intervening linker. Linkerless systems

for attaching polyethylene glycol to proteins are described in Delgado *et al.*. *Crit. Rev. Thera. Drug Carrier Sys.* *9*:249-304 (1992); Francis *et al.*. *Intern. J. of Hematol.* *68*:1-18 (1998); U.S. Patent No. 4,002,531; U.S. Patent No. 5,349,052; WO 95/06058; and WO 98/32466, the disclosures of each of which are incorporated herein by reference.

One system for attaching polyethylene glycol directly to amino acid residues of proteins without an intervening linker employs tresylated MPEG, which is produced by the modification of monmethoxy polyethylene glycol (MPEG) using tresylchloride ($ClSO_2CH_2CF_3$). Upon reaction of protein with tresylated MPEG, polyethylene glycol is directly attached to amine groups of the protein. Thus, the invention includes protein-polyethylene glycol conjugates produced by reacting proteins of the invention with a polyethylene glycol molecule having a 2,2,2-trifluoreothane sulphonyl group.

Polyethylene glycol can also be attached to proteins using a number of different intervening linkers. For example, U.S. Patent No. 5,612,460, the entire disclosure of which is incorporated herein by reference, discloses urethane linkers for connecting polyethylene glycol to proteins. Protein-polyethylene glycol conjugates wherein the polyethylene glycol is attached to the protein by a linker can also be produced by reaction of proteins with compounds such as MPEG-succinimidylsuccinate, MPEG activated with 1,1'-carbonyldiimidazole, MPEG-2,4,5-trichloropenylcarbonate, MPEG-p-nitrophenolcarbonate, and various MPEG-succinate derivatives. A number additional polyethylene glycol derivatives and reaction chemistries for attaching polyethylene glycol to proteins are described in WO 98/32466, the entire disclosure of which is incorporated herein by reference. Pegylated protein products produced using the reaction chemistries set out herein are included within the scope of the invention.

The number of polyethylene glycol moieties attached to each protein of the invention (*i.e.*, the degree of substitution) may also vary. For example, the pegylated proteins of the invention may be linked, on average, to 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 17, 20, or more polyethylene glycol molecules. Similarly, the average degree of

substitution within ranges such as 1-3, 2-4, 3-5, 4-6, 5-7, 6-8, 7-9, 8-10, 9-11, 10-12, 11-13, 12-14, 13-15, 14-16, 15-17, 16-18, 17-19, or 18-20 polyethylene glycol moieties per protein molecule. Methods for determining the degree of substitution are discussed, for example, in Delgado *et al.*. *Crit. Rev. Thera. Drug Carrier Sys.* *9*:249-304 (1992).

The prostate cancer antigen polypeptides of the invention may be in monomers or multimers (i.e., dimers, trimers, tetramers and higher multimers). Accordingly, the present invention relates to monomers and multimers of the polypeptides of the invention, their preparation, and compositions (preferably, Therapeutics) containing them. In specific embodiments, the polypeptides of the invention are monomers, dimers, trimers or tetramers. In additional embodiments, the multimers of the invention are at least dimers, at least trimers, or at least tetramers.

Multimers encompassed by the invention may be homomers or heteromers. As used herein, the term homomer, refers to a multimer containing only polypeptides corresponding to the amino acid sequence of SEQ ID NO:Y or an amino acid sequence encoded by SEQ ID NO:X, and/or an amino acid sequence encoded by the cDNA in a related cDNA clone contained in a deposited library (including fragments, variants, splice variants, and fusion proteins, corresponding to any one of these as described herein). These homomers may contain polypeptides having identical or different amino acid sequences. In a specific embodiment, a homomer of the invention is a multimer containing only polypeptides having an identical amino acid sequence. In another specific embodiment, a homomer of the invention is a multimer containing polypeptides having different amino acid sequences. In specific embodiments, the multimer of the invention is a homodimer (e.g., containing polypeptides having identical or different amino acid sequences) or a homotrimer (e.g., containing polypeptides having identical and/or different amino acid sequences). In additional embodiments, the homomeric multimer of the invention is at least a homodimer, at least a homotrimer, or at least a homotetramer.

As used herein, the term heteromer refers to a multimer containing one or more heterologous polypeptides (i.e., polypeptides of different proteins) in addition to

the polypeptides of the invention. In a specific embodiment, the multimer of the invention is a heterodimer, a heterotrimer, or a heterotetramer. In additional embodiments, the heteromeric multimer of the invention is at least a heterodimer, at least a heterotrimer, or at least a heterotetramer.

Multimers of the invention may be the result of hydrophobic, hydrophilic, ionic and/or covalent associations and/or may be indirectly linked, by for example, liposome formation. Thus, in one embodiment, multimers of the invention, such as, for example, homodimers or homotrimers, are formed when polypeptides of the invention contact one another in solution. In another embodiment, heteromultimers of the invention, such as, for example, heterotrimers or heterotetramers, are formed when polypeptides of the invention contact antibodies to the polypeptides of the invention (including antibodies to the heterologous polypeptide sequence in a fusion protein of the invention) in solution. In other embodiments, multimers of the invention are formed by covalent associations with and/or between the polypeptides of the invention. Such covalent associations may involve one or more amino acid residues contained in the polypeptide sequence (e.g., that recited in SEQ ID NO:Y, or contained in a polypeptide encoded by SEQ ID NO:X, and/or by the cDNA in the related cDNA clone contained in a deposited library). In one instance, the covalent associations are cross-linking between cysteine residues located within the polypeptide sequences which interact in the native (i.e., naturally occurring) polypeptide. In another instance, the covalent associations are the consequence of chemical or recombinant manipulation. Alternatively, such covalent associations may involve one or more amino acid residues contained in the heterologous polypeptide sequence in a fusion protein. In one example, covalent associations are between the heterologous sequence contained in a fusion protein of the invention (see, e.g., US Patent Number 5,478,925). In a specific example, the covalent associations are between the heterologous sequence contained in a Fc fusion protein of the invention (as described herein). In another specific example, covalent associations of fusion proteins of the invention are between heterologous polypeptide sequence from another protein that is capable of forming covalently associated multimers, such as for

example, oseteoprotegerin (see, e.g., International Publication NO: WO 98/49305, the contents of which are herein incorporated by reference in its entirety). In another embodiment, two or more polypeptides of the invention are joined through peptide linkers. Examples include those peptide linkers described in U.S. Pat. No. 5,073,627 (hereby incorporated by reference). Proteins comprising multiple polypeptides of the invention separated by peptide linkers may be produced using conventional recombinant DNA technology.

Another method for preparing multimer polypeptides of the invention involves use of polypeptides of the invention fused to a leucine zipper or isoleucine zipper polypeptide sequence. Leucine zipper and isoleucine zipper domains are polypeptides that promote multimerization of the proteins in which they are found. Leucine zippers were originally identified in several DNA-binding proteins (Landschulz et al., Science 240:1759, (1988)), and have since been found in a variety of different proteins. Among the known leucine zippers are naturally occurring peptides and derivatives thereof that dimerize or trimerize. Examples of leucine zipper domains suitable for producing soluble multimeric proteins of the invention are those described in PCT application WO 94/10308, hereby incorporated by reference. Recombinant fusion proteins comprising a polypeptide of the invention fused to a polypeptide sequence that dimerizes or trimerizes in solution are expressed in suitable host cells, and the resulting soluble multimeric fusion protein is recovered from the culture supernatant using techniques known in the art.

Trimeric polypeptides of the invention may offer the advantage of enhanced biological activity. Preferred leucine zipper moieties and isoleucine moieties are those that preferentially form trimers. One example is a leucine zipper derived from lung surfactant protein D (SPD), as described in Hoppe et al. (FEBS Letters 344:191, (1994)) and in U.S. patent application Ser. No. 08/446,922, hereby incorporated by reference. Other peptides derived from naturally occurring trimeric proteins may be employed in preparing trimeric polypeptides of the invention.

In another example, proteins of the invention are associated by interactions between Flag® polypeptide sequence contained in fusion proteins of the invention

containing Flag® polypeptide seuqence. In a further embodiment, associations proteins of the invention are associated by interactions between heterologous polypeptide sequence contained in Flag® fusion proteins of the invention and anti-Flag® antibody.

The multimers of the invention may be generated using chemical techniques known in the art. For example, polypeptides desired to be contained in the multimers of the invention may be chemically cross-linked using linker molecules and linker molecule length optimization techniques known in the art (see, e.g., US Patent Number 5,478,925, which is herein incorporated by reference in its entirety). Additionally, multimers of the invention may be generated using techniques known in the art to form one or more inter-molecule cross-links between the cysteine residues located within the sequence of the polypeptides desired to be contained in the multimer (see, e.g., US Patent Number 5,478,925, which is herein incorporated by reference in its entirety). Further, polypeptides of the invention may be routinely modified by the addition of cysteine or biotin to the C-terminus or N-terminus of the polypeptide and techniques known in the art may be applied to generate multimers containing one or more of these modified polypeptides (see, e.g., US Patent Number 5,478,925, which is herein incorporated by reference in its entirety). Additionally, techniques known in the art may be applied to generate liposomes containing the polypeptide components desired to be contained in the multimer of the invention (see, e.g., US Patent Number 5,478,925, which is herein incorporated by reference in its entirety).

Alternatively, multimers of the invention may be generated using genetic engineering techniques known in the art. In one embodiment, polypeptides contained in multimers of the invention are produced recombinantly using fusion protein technology described herein or otherwise known in the art (see, e.g., US Patent Number 5,478,925, which is herein incorporated by reference in its entirety). In a specific embodiment, polynucleotides coding for a homodimer of the invention are generated by ligating a polynucleotide sequence encoding a polypeptide of the invention to a sequence encoding a linker polypeptide and then further to a synthetic

polynucleotide encoding the translated product of the polypeptide in the reverse orientation from the original C-terminus to the N-terminus (lacking the leader sequence) (see, e.g., US Patent Number 5,478,925, which is herein incorporated by reference in its entirety). In another embodiment, recombinant techniques described herein or otherwise known in the art are applied to generate recombinant polypeptides of the invention which contain a transmembrane domain (or hyrophobic or signal peptide) and which can be incorporated by membrane reconstitution techniques into liposomes (see, e.g., US Patent Number 5,478,925, which is herein incorporated by reference in its entirety).

Antibodies

Further polypeptides of the invention relate to antibodies and T-cell antigen receptors (TCR) which immunospecifically bind a polypeptide, polypeptide fragment, or variant of SEQ ID NO:Y, and/or an epitope, of the present invention (as determined by immunoassays well known in the art for assaying specific antibody-antigen binding). Antibodies of the invention include, but are not limited to, polyclonal, monoclonal, multispecific, human, humanized or chimeric antibodies, single chain antibodies, Fab fragments, F(ab') fragments, fragments produced by a Fab expression library, anti-idiotypic (anti-Id) antibodies (including, e.g., anti-Id antibodies to antibodies of the invention), and epitope-binding fragments of any of the above. The term "antibody," as used herein, refers to immunoglobulin molecules and immunologically active portions of immunoglobulin molecules, i.e., molecules that contain an antigen binding site that immunospecifically binds an antigen. The immunoglobulin molecules of the invention can be of any type (e.g., IgG, IgE, IgM, IgD, IgA and IgY), class (e.g., IgG1, IgG2, IgG3, IgG4, IgA1 and IgA2) or subclass of immunoglobulin molecule.

Most preferably the antibodies are human antigen-binding antibody fragments of the present invention and include, but are not limited to, Fab, Fab' and F(ab')2, Fd, single-chain Fvs (scFv), single-chain antibodies, disulfide-linked Fvs (sdFv) and fragments comprising either a VL or VH domain. Antigen-binding antibody

fragments, including single-chain antibodies, may comprise the variable region(s) alone or in combination with the entirety or a portion of the following: hinge region, CH1, CH2, and CH3 domains. Also included in the invention are antigen-binding fragments also comprising any combination of variable region(s) with a hinge region, CH1, CH2, and CH3 domains. The antibodies of the invention may be from any animal origin including birds and mammals. Preferably, the antibodies are human, murine (e.g., mouse and rat), donkey, ship rabbit, goat, guinea pig, camel, horse, or chicken. As used herein, "human" antibodies include antibodies having the amino acid sequence of a human immunoglobulin and include antibodies isolated from human immunoglobulin libraries or from animals transgenic for one or more human immunoglobulin and that do not express endogenous immunoglobulins, as described infra and, for example in, U.S. Patent No. 5,939,598 by Kucherlapati et al.

The antibodies of the present invention may be monospecific, bispecific, trispecific or of greater multispecificity. Multispecific antibodies may be specific for different epitopes of a polypeptide of the present invention or may be specific for both a polypeptide of the present invention as well as for a heterologous epitope, such as a heterologous polypeptide or solid support material. See, e.g., PCT publications WO 93/17715; WO 92/08802; WO 91/00360; WO 92/05793; Tutt, et al., J. Immunol. 147:60-69 (1991); U.S. Patent Nos. 4,474,893; 4,714,681; 4,925,648; 5,573,920; 5,601,819; Kostelny et al., J. Immunol. 148:1547-1553 (1992).

Antibodies of the present invention may be described or specified in terms of the epitope(s) or portion(s) of a polypeptide of the present invention which they recognize or specifically bind. The epitope(s) or polypeptide portion(s) may be specified as described herein, e.g., by N-terminal and C-terminal positions, or by size in contiguous amino acid residues. Antibodies which specifically bind any epitope or polypeptide of the present invention may also be excluded. Therefore, the present invention includes antibodies that specifically bind polypeptides of the present invention, and allows for the exclusion of the same.

Antibodies of the present invention may also be described or specified in terms of their cross-reactivity. Antibodies that do not bind any other analog, ortholog,

or homolog of a polypeptide of the present invention are included. Antibodies that bind polypeptides with at least 95%, at least 90%, at least 85%, at least 80%, at least 75%, at least 70%, at least 65%, at least 60%, at least 55%, and at least 50% identity (as calculated using methods known in the art and described herein) to a polypeptide of the present invention are also included in the present invention. In specific embodiments. antibodies of the present invention cross-react with murine, rat and/or rabbit homologs of human proteins and the corresponding epitopes thereof. Antibodies that do not bind polypeptides with less than 95%, less than 90%, less than 85%, less than 80%, less than 75%, less than 70%, less than 65%, less than 60%, less than 55%, and less than 50% identity (as calculated using methods known in the art and described herein) to a polypeptide of the present invention are also included in the present invention. In a specific embodiment, the above-described cross-reactivity is with respect to any single specific antigenic or immunogenic polypeptide, or combination(s) of 2, 3, 4, 5, or more of the specific antigenic and/or immunogenic polypeptides disclosed herein. Further included in the present invention are antibodies which bind polypeptides encoded by polynucleotides which hybridize to a polynucleotide of the present invention under stringent hybridization conditions (as described herein). Antibodies of the present invention may also be described or specified in terms of their binding affinity to a polypeptide of the invention. Preferred binding affinities include those with a dissociation constant or Kd less than 5×10^{-2} M, 10^{-2} M, 5×10^{-3} M, 10^{-3} M, 5×10^{-4} M, 10^{-4} M, 5×10^{-5} M, 10^{-5} M, 5×10^{-6} M, 10^{-6}M, 5×10^{-7} M, 10^{7} M, 5×10^{-8} M, 10^{-8} M, 5×10^{-9} M, 10^{-9} M, 5×10^{-10} M, 10^{-10} M, 5×10^{-11} M, 10^{-11} M, 5×10^{-12} M, $^{10-12}$ M, 5×10^{-13} M, 10^{-13} M, 5×10^{-14} M, 10^{-14} M, 5×10^{-15} M, or $^{10-15}$ M.

The invention also provides antibodies that competitively inhibit binding of an antibody to an epitope of the invention as determined by any method known in the art for determining competitive binding, for example, the immunoassays described herein. In preferred embodiments, the antibody competitively inhibits binding to the epitope by at least 95%, at least 90%, at least 85 %, at least 80%, at least 75%, at least 70%. at least 60%, or at least 50%.

Antibodies of the present invention may act as agonists or antagonists of the polypeptides of the present invention. For example, the present invention includes antibodies which disrupt the receptor/ligand interactions with the polypeptides of the invention either partially or fully. Preferrably, antibodies of the present invention bind an antigenic epitope disclosed herein. or a portion thereof. The invention features both receptor-specific antibodies and ligand-specific antibodies. The invention also features receptor-specific antibodies which do not prevent ligand binding but prevent receptor activation. Receptor activation (i.e., signaling) may be determined by techniques described herein or otherwise known in the art. For example, receptor activation can be determined by detecting the phosphorylation (e.g., tyrosine or serine/threonine) of the receptor or its substrate by immunoprecipitation followed by western blot analysis (for example, as described supra). In specific embodiments, antibodies are provided that inhibit ligand activity or receptor activity by at least 95%, at least 90%, at least 85%, at least 80%, at least 75%, at least 70%, at least 60%, or at least 50% of the activity in absence of the antibody.

The invention also features receptor-specific antibodies which both prevent ligand binding and receptor activation as well as antibodies that recognize the receptor-ligand complex, and, preferably, do not specifically recognize the unbound receptor or the unbound ligand. Likewise, included in the invention are neutralizing antibodies which bind the ligand and prevent binding of the ligand to the receptor, as well as antibodies which bind the ligand, thereby preventing receptor activation, but do not prevent the ligand from binding the receptor. Further included in the invention are antibodies which activate the receptor. These antibodies may act as receptor agonists, i.e., potentiate or activate either all or a subset of the biological activities of the ligand-mediated receptor activation, for example, by inducing dimerization of the receptor. The antibodies may be specified as agonists, antagonists or inverse agonists for biological activities comprising the specific biological activities of the peptides of the invention disclosed herein. The above antibody agonists can be made using methods known in the art. See, e.g., PCT publication WO 96/40281; U.S. Patent No. 5,811.097; Deng et al., Blood 92(6):1981-1988 (1998); Chen et al., Cancer Res.

58(16):3668-3678 (1998); Harrop et al., J. Immunol. 161(4):1786-1794 (1998); Zhu et al.. Cancer Res. 58(15):3209-3214 (1998); Yoon et al.. J. Immunol. 160(7):3170-3179 (1998); Prat et al., J. Cell. Sci. 111(Pt2):237-247 (1998); Pitard et al., J. Immunol. Methods 205(2):177-190 (1997); Liautard et al., Cytokine 9(4):233-241 (1997); Carlson et al., J. Biol. Chem. 272(17):11295-11301 (1997); Taryman et al., Neuron 14(4):755-762 (1995); Muller et al., Structure 6(9):1153-1167 (1998); Bartunek et al., Cytokine 8(1):14-20 (1996) (which are all incorporated by reference herein in their entireties).

Antibodies of the present invention may be used, for example, but not limited to. to purify, detect, and target the polypeptides of the present invention, including both in vitro and in vivo diagnostic and therapeutic methods. For example, the antibodies have use in immunoassays for qualitatively and quantitatively measuring levels of the polypeptides of the present invention in biological samples. See, e.g., Harlow et al., Antibodies: A Laboratory Manual, (Cold Spring Harbor Laboratory Press, 2nd ed. 1988) (incorporated by reference herein in its entirety).

As discussed in more detail below, the antibodies of the present invention may be used either alone or in combination with other compositions. The antibodies may further be recombinantly fused to a heterologous polypeptide at the N- or C-terminus or chemically conjugated (including covalently and non-covalently conjugations) to polypeptides or other compositions. For example, antibodies of the present invention may be recombinantly fused or conjugated to molecules useful as labels in detection assays and effector molecules such as heterologous polypeptides. drugs, radionuclides, or toxins. See, e.g., PCT publications WO 92/08495; WO 91/14438; WO 89/12624; U.S. Patent No. 5,314,995; and EP 396,387.

The antibodies of the invention include derivatives that are modified. i.e, by the covalent attachment of any type of molecule to the antibody such that covalent attachment does not prevent the antibody from generating an anti-idiotypic response. For example, but not by way of limitation, the antibody derivatives include antibodies that have been modified, e.g., by glycosylation. acetylation. pegylation, phosphylation, amidation. derivatization by known protecting/blocking groups,

proteolytic cleavage, linkage to a cellular ligand or other protein. etc. Any of numerous chemical modifications may be carried out by known techniques, including, but not limited to specific chemical cleavage, acetylation, formylation, metabolic synthesis of tunicamycin, etc. Additionally, the derivative may contain one or more non-classical amino acids.

The antibodies of the present invention may be generated by any suitable method known in the art. Polyclonal antibodies to an antigen-of- interest can be produced by various procedures well known in the art. For example, a polypeptide of the invention can be administered to various host animals including, but not limited to, rabbits, mice, rats, etc. to induce the production of sera containing polyclonal antibodies specific for the antigen. Various adjuvants may be used to increase the immunological response, depending on the host species, and include but are not limited to, Freund's (complete and incomplete), mineral gels such as aluminum hydroxide, surface active substances such as lysolecithin, pluronic polyols, polyanions, peptides, oil emulsions, keyhole limpet hemocyanins, dinitrophenol, and potentially useful human adjuvants such as BCG (bacille Calmette-Guerin) and corynebacterium parvum. Such adjuvants are also well known in the art.

Monoclonal antibodies can be prepared using a wide variety of techniques known in the art including the use of hybridoma, recombinant, and phage display technologies, or a combination thereof. For example, monoclonal antibodies can be produced using hybridoma techniques including those known in the art and taught, for example, in Harlow et al., Antibodies: A Laboratory Manual, (Cold Spring Harbor Laboratory Press, 2nd ed. 1988); Hammerling, et al., in: Monoclonal Antibodies and T-Cell Hybridomas 563-681 (Elsevier, N.Y., 1981) (said references incorporated by reference in their entireties). The term "monoclonal antibody" as used herein is not limited to antibodies produced through hybridoma technology. The term "monoclonal antibody" refers to an antibody that is derived from a single clone, including any eukaryotic, prokaryotic, or phage clone, and not the method by which it is produced.

Methods for producing and screening for specific antibodies using hybridoma technology are routine and well known in the art and are discussed in detail in the Examples. In a non-limiting example, mice can be immunized with a polypeptide of the invention or a cell expressing such peptide. Once an immune response is detected, e.g., antibodies specific for the antigen are detected in the mouse serum, the mouse spleen is harvested and splenocytes isolated. The splenocytes are then fused by well known techniques to any suitable myeloma cells, for example cells from cell line SP20 available from the ATCC. Hybridomas are selected and cloned by limited dilution. The hybridoma clones are then assayed by methods known in the art for cells that secrete antibodies capable of binding a polypeptide of the invention. Ascites fluid, which generally contains high levels of antibodies, can be generated by immunizing mice with positive hybridoma clones.

Accordingly, the present invention provides methods of generating monoclonal antibodies as well as antibodies produced by the method comprising culturing a hybridoma cell secreting an antibody of the invention wherein, preferably, the hybridoma is generated by fusing splenocytes isolated from a mouse immunized with an antigen of the invention with myeloma cells and then screening the hybridomas resulting from the fusion for hybridoma clones that secrete an antibody able to bind a polypeptide of the invention.

Antibody fragments which recognize specific epitopes may be generated by known techniques. For example, Fab and F(ab')2 fragments of the invention may be produced by proteolytic cleavage of immunoglobulin molecules, using enzymes such as papain (to produce Fab fragments) or pepsin (to produce F(ab')2 fragments). F(ab')2 fragments contain the variable region, the light chain constant region and the CH1 domain of the heavy chain.

For example, the antibodies of the present invention can also be generated using various phage display methods known in the art. In phage display methods, functional antibody domains are displayed on the surface of phage particles which carry the polynucleotide sequences encoding them. In a particular embodiment, such phage can be utilized to display antigen binding domains expressed from a repertoire

or combinatorial antibody library (e.g., human or murine). Phage expressing an antigen binding domain that binds the antigen of interest can be selected or identified with antigen, e.g., using labeled antigen or antigen bound or captured to a solid surface or bead. Phage used in these methods are typically filamentous phage including fd and M13 binding domains expressed from phage with Fab, Fv or disulfide stabilized Fv antibody domains recombinantly fused to either the phage gene III or gene VIII protein. Examples of phage display methods that can be used to make the antibodies of the present invention include those disclosed in Brinkman et al., J. Immunol. Methods 182:41-50 (1995); Ames et al., J. Immunol. Methods 184:177-186 (1995); Kettleborough et al., Eur. J. Immunol. 24:952-958 (1994); Persic et al.. Gene 187 9-18 (1997); Burton et al.. Advances in Immunology 57:191-280 (1994); PCT application No. PCT/GB91/01134; PCT publications WO 90/02809; WO 91/10737; WO 92/01047; WO 92/18619; WO 93/11236; WO 95/15982; WO 95/20401; and U.S. Patent Nos. 5,698,426; 5,223,409; 5,403,484; 5,580,717; 5,427,908; 5,750,753; 5,821,047; 5,571,698; 5,427,908; 5,516,637; 5,780,225; 5,658,727; 5,733,743 and 5,969,108; each of which is incorporated herein by reference in its entirety.

As described in the above references, after phage selection, the antibody coding regions from the phage can be isolated and used to generate whole antibodies, including human antibodies, or any other desired antigen binding fragment, and expressed in any desired host, including mammalian cells, insect cells, plant cells, yeast, and bacteria, e.g., as described in detail below. For example, techniques to recombinantly produce Fab, Fab' and F(ab')2 fragments can also be employed using methods known in the art such as those disclosed in PCT publication WO 92/22324; Mullinax et al., BioTechniques 12(6):864-869 (1992); and Sawai et al., AJRI 34:26-34 (1995); and Better et al., Science 240:1041-1043 (1988) (said references incorporated by reference in their entireties).

Examples of techniques which can be used to produce single-chain Fvs and antibodies include those described in U.S. Patents 4,946,778 and 5,258,498; Huston et al.. Methods in Enzymology 203:46-88 (1991); Shu et al., PNAS 90:7995-7999

(1993); and Skerra et al., Science 240:1038-1040 (1988). For some uses, including in vivo use of antibodies in humans and in vitro detection assays, it may be preferable to use chimeric, humanized, or human antibodies. A chimeric antibody is a molecule in which different portions of the antibody are derived from different animal species, such as antibodies having a variable region derived from a murine monoclonal antibody and a human immunoglobulin constant region. Methods for producing chimeric antibodies are known in the art. See e.g., Morrison, Science 229:1202 (1985); Oi et al., BioTechniques 4:214 (1986); Gillies et al., (1989) J. Immunol. Methods 125:191-202; U.S. Patent Nos. 5,807,715; 4,816,567; and 4,816397, which are incorporated herein by reference in their entirety. Humanized antibodies are antibody molecules from non-human species antibody that binds the desired antigen having one or more complementarity determining regions (CDRs) from the non-human species and a framework regions from a human immunoglobulin molecule. Often, framework residues in the human framework regions will be substituted with the corresponding residue from the CDR donor antibody to alter, preferably improve, antigen binding. These framework substitutions are identified by methods well known in the art, e.g., by modeling of the interactions of the CDR and framework residues to identify framework residues important for antigen binding and sequence comparison to identify unusual framework residues at particular positions. (See, e.g., Queen et al.. U.S. Patent No. 5,585,089; Riechmann et al., Nature 332:323 (1988), which are incorporated herein by reference in their entireties.) Antibodies can be humanized using a variety of techniques known in the art including, for example, CDR-grafting (EP 239,400; PCT publication WO 91/09967; U.S. Patent Nos. 5,225,539; 5,530,101; and 5,585,089), veneering or resurfacing (EP 592,106; EP 519,596; Padlan, Molecular Immunology 28(4/5):489-498 (1991); Studnicka et al., Protein Engineering 7(6):805-814 (1994); Roguska. et al., PNAS 91:969-973 (1994)), and chain shuffling (U.S. Patent No. 5,565,332).

Completely human antibodies are particularly desirable for therapeutic treatment of human patients. Human antibodies can be made by a variety of methods known in the art including phage display methods described above using antibody

libraries derived from human immunoglobulin sequences. See also, U.S. Patent Nos. 4,444,887 and 4,716,111; and PCT publications WO 98/46645, WO 98/50433, WO 98/24893, WO 98/16654, WO 96/34096, WO 96/33735, and WO 91/10741; each of which is incorporated herein by reference in its entirety.

Human antibodies can also be produced using transgenic mice which are incapable of expressing functional endogenous immunoglobulins, but which can express human immunoglobulin genes. For example, the human heavy and light chain immunoglobulin gene complexes may be introduced randomly or by homologous recombination into mouse embryonic stem cells. Alternatively, the human variable region, constant region, and diversity region may be introduced into mouse embryonic stem cells in addition to the human heavy and light chain genes. The mouse heavy and light chain immunoglobulin genes may be rendered non-functional separately or simultaneously with the introduction of human immunoglobulin loci by homologous recombination. In particular, homozygous deletion of the JH region prevents endogenous antibody production. The modified embryonic stem cells are expanded and microinjected into blastocysts to produce chimeric mice. The chimeric mice are then bred to produce homozygous offspring which express human antibodies. The transgenic mice are immunized in the normal fashion with a selected antigen, e.g., all or a portion of a polypeptide of the invention. Monoclonal antibodies directed against the antigen can be obtained from the immunized, transgenic mice using conventional hybridoma technology. The human immunoglobulin transgenes harbored by the transgenic mice rearrange during B cell differentiation, and subsequently undergo class switching and somatic mutation. Thus, using such a technique, it is possible to produce therapeutically useful IgG, IgA, IgM and IgE antibodies. For an overview of this technology for producing human antibodies, see Lonberg and Huszar, Int. Rev. Immunol. 13:65-93 (1995). For a detailed discussion of this technology for producing human antibodies and human monoclonal antibodies and protocols for producing such antibodies, see, e.g., PCT publications WO 98/24893; WO 92/01047; WO 96/34096; WO 96/33735; European Patent No. 0 598 877; U.S. Patent Nos. 5,413,923; 5,625,126; 5,633,425; 5,569,825;

5,661,016; 5,545,806; 5,814,318; 5,885,793; 5,916,771; and 5,939,598, which are incorporated by reference herein in their entirety. In addition, companies such as Abgenix, Inc. (Freemont, CA) and Genpharm (San Jose, CA) can be engaged to provide human antibodies directed against a selected antigen using technology similar to that described above.

Completely human antibodies which recognize a selected epitope can be generated using a technique referred to as "guided selection." In this approach a selected non-human monoclonal antibody, e.g., a mouse antibody, is used to guide the selection of a completely human antibody recognizing the same epitope. (Jespers et al., Bio/technology 12:899-903 (1988)).

Further, antibodies to the polypeptides of the invention can, in turn, be utilized to generate anti-idiotype antibodies that "mimic" polypeptides of the invention using techniques well known to those skilled in the art. (See, e.g., Greenspan & Bona, FASEB J. 7(5):437-444; (1989) and Nissinoff, J. Immunol. 147(8):2429-2438 (1991)). For example, antibodies which bind to and competitively inhibit polypeptide multimerization and/or binding of a polypeptide of the invention to a ligand can be used to generate anti-idiotypes that "mimic" the polypeptide multimerization and/or binding domain and, as a consequence, bind to and neutralize polypeptide and/or its ligand. Such neutralizing anti-idiotypes or Fab fragments of such anti-idiotypes can be used in therapeutic regimens to neutralize polypeptide ligand. For example, such anti-idiotypic antibodies can be used to bind a polypeptide of the invention and/or to bind its ligands/receptors, and thereby block its biological activity.

Polynucleotides Encoding Antibodies

The invention further provides polynucleotides comprising a nucleotide sequence encoding an antibody of the invention and fragments thereof. The invention also encompasses polynucleotides that hybridize under stringent or alternatively, under lower stringency hybridization conditions, e.g., as defined supra, to polynucleotides that encode an antibody, preferably, that specifically binds to a

polypeptide of the invention, preferably, an antibody that binds to a polypeptide having the amino acid sequence of SEQ ID NO:Y.

The polynucleotides may be obtained, and the nucleotide sequence of the polynucleotides determined, by any method known in the art. For example, if the nucleotide sequence of the antibody is known, a polynucleotide encoding the antibody may be assembled from chemically synthesized oligonucleotides (e.g., as described in Kutmeier et al., BioTechniques 17:242 (1994)), which, briefly, involves the synthesis of overlapping oligonucleotides containing portions of the sequence encoding the antibody, annealing and ligating of those oligonucleotides, and then amplification of the ligated oligonucleotides by PCR.

Alternatively, a polynucleotide encoding an antibody may be generated from nucleic acid from a suitable source. If a clone containing a nucleic acid encoding a particular antibody is not available, but the sequence of the antibody molecule is known, a nucleic acid encoding the immunoglobulin may be chemically synthesized or obtained from a suitable source (e.g., an antibody cDNA library, or a cDNA library generated from, or nucleic acid, preferably poly A+ RNA, isolated from, any tissue or cells expressing the antibody, such as hybridoma cells selected to express an antibody of the invention) by PCR amplification using synthetic primers hybridizable to the 3' and 5' ends of the sequence or by cloning using an oligonucleotide probe specific for the particular gene sequence to identify, e.g., a cDNA clone from a cDNA library that encodes the antibody. Amplified nucleic acids generated by PCR may then be cloned into replicable cloning vectors using any method well known in the art.

Once the nucleotide sequence and corresponding amino acid sequence of the antibody is determined, the nucleotide sequence of the antibody may be manipulated using methods well known in the art for the manipulation of nucleotide sequences, e.g., recombinant DNA techniques, site directed mutagenesis, PCR, etc. (see, for example, the techniques described in Sambrook et al., 1990, Molecular Cloning, A Laboratory Manual, 2d Ed., Cold Spring Harbor Laboratory, Cold Spring Harbor, NY and Ausubel et al., eds., 1998, Current Protocols in Molecular Biology, John Wiley &

Sons. NY, which are both incorporated by reference herein in their entireties), to generate antibodies having a different amino acid sequence. for example to create amino acid substitutions. deletions, and/or insertions.

In a specific embodiment, the amino acid sequence of the heavy and/or light chain variable domains may be inspected to identify the sequences of the complementarity determining regions (CDRs) by methods that are well know in the art. e.g., by comparison to known amino acid sequences of other heavy and light chain variable regions to determine the regions of sequence hypervariability. Using routine recombinant DNA techniques. one or more of the CDRs may be inserted within framework regions. e.g., into human framework regions to humanize a non-human antibody, as described supra. The framework regions may be naturally occurring or consensus framework regions, and preferably human framework regions (see, e.g., Chothia et al., J. Mol. Biol. 278: 457-479 (1998) for a listing of human framework regions). Preferably, the polynucleotide generated by the combination of the framework regions and CDRs encodes an antibody that specifically binds a polypeptide of the invention. Preferably, as discussed supra, one or more amino acid substitutions may be made within the framework regions, and, preferably, the amino acid substitutions improve binding of the antibody to its antigen. Additionally, such methods may be used to make amino acid substitutions or deletions of one or more variable region cysteine residues participating in an intrachain disulfide bond to generate antibody molecules lacking one or more intrachain disulfide bonds. Other alterations to the polynucleotide are encompassed by the present invention and within the skill of the art.

In addition, techniques developed for the production of "chimeric antibodies" (Morrison et al., Proc. Natl. Acad. Sci. 81:851-855 (1984); Neuberger et al., Nature 312:604-608 (1984); Takeda et al., Nature 314:452-454 (1985)) by splicing genes from a mouse antibody molecule of appropriate antigen specificity together with genes from a human antibody molecule of appropriate biological activity can be used. As described supra, a chimeric antibody is a molecule in which different portions are derived from different animal species. such as those having a variable region derived

from a murine mAb and a human immunoglobulin constant region. e.g., humanized antibodies.

Alternatively, techniques described for the production of single chain antibodies (U.S. Patent No. 4,946,778; Bird, Science 242:423- 42 (1988); Huston et al., Proc. Natl. Acad. Sci. USA 85:5879-5883 (1988); and Ward et al., Nature 334:544-54 (1989)) can be adapted to produce single chain antibodies. Single chain antibodies are formed by linking the heavy and light chain fragments of the Fv region via an amino acid bridge, resulting in a single chain polypeptide. Techniques for the assembly of functional Fv fragments in E. coli may also be used (Skerra et al., Science 242:1038- 1041 (1988)).

Methods of Producing Antibodies

The antibodies of the invention can be produced by any method known in the art for the synthesis of antibodies, in particular, by chemical synthesis or preferably, by recombinant expression techniques.

Recombinant expression of an antibody of the invention, or fragment, derivative or analog thereof, (e.g., a heavy or light chain of an antibody of the invention or a single chain antibody of the invention), requires construction of an expression vector containing a polynucleotide that encodes the antibody. Once a polynucleotide encoding an antibody molecule or a heavy or light chain of an antibody, or portion thereof (preferably containing the heavy or light chain variable domain), of the invention has been obtained, the vector for the production of the antibody molecule may be produced by recombinant DNA technology using techniques well known in the art. Thus, methods for preparing a protein by expressing a polynucleotide containing an antibody encoding nucleotide sequence are described herein. Methods which are well known to those skilled in the art can be used to construct expression vectors containing antibody coding sequences and appropriate transcriptional and translational control signals. These methods include, for example, in vitro recombinant DNA techniques, synthetic techniques, and in vivo genetic recombination. The invention. thus. provides replicable vectors comprising a

nucleotide sequence encoding an antibody molecule of the invention. or a heavy or light chain thereof. or a heavy or light chain variable domain, operably linked to a promoter. Such vectors may include the nucleotide sequence encoding the constant region of the antibody molecule (see, e.g., PCT Publication WO 86/05807; PCT Publication WO 89/01036; and U.S. Patent No. 5,122,464) and the variable domain of the antibody may be cloned into such a vector for expression of the entire heavy or light chain.

The expression vector is transferred to a host cell by conventional techniques and the transfected cells are then cultured by conventional techniques to produce an antibody of the invention. Thus, the invention includes host cells containing a polynucleotide encoding an antibody of the invention. or a heavy or light chain thereof, or a single chain antibody of the invention, operably linked to a heterologous promoter. In preferred embodiments for the expression of double-chained antibodies, vectors encoding both the heavy and light chains may be co-expressed in the host cell for expression of the entire immunoglobulin molecule. as detailed below.

A variety of host-expression vector systems may be utilized to express the antibody molecules of the invention. Such host-expression systems represent vehicles by which the coding sequences of interest may be produced and subsequently purified, but also represent cells which may, when transformed or transfected with the appropriate nucleotide coding sequences. express an antibody molecule of the invention in situ. These include but are not limited to microorganisms such as bacteria (e.g., E. coli, B. subtilis) transformed with recombinant bacteriophage DNA, plasmid DNA or cosmid DNA expression vectors containing antibody coding sequences; yeast (e.g., Saccharomyces, Pichia) transformed with recombinant yeast expression vectors containing antibody coding sequences; insect cell systems infected with recombinant virus expression vectors (e.g., baculovirus) containing antibody coding sequences; plant cell systems infected with recombinant virus expression vectors (e.g., cauliflower mosaic virus, CaMV; tobacco mosaic virus, TMV) or transformed with recombinant plasmid expression vectors (e.g., Ti plasmid) containing antibody coding sequences; or mammalian cell systems (e.g.. COS. CHO.

BHK. 293, 3T3 cells) harboring recombinant expression constructs containing promoters derived from the genome of mammalian cells (e.g., metallothionein promoter) or from mammalian viruses (e.g., the adenovirus late promoter; the vaccinia virus 7.5K promoter). Preferably, bacterial cells such as Escherichia coli, and more preferably, eukaryotic cells, especially for the expression of whole recombinant antibody molecule, are used for the expression of a recombinant antibody molecule. For example, mammalian cells such as Chinese hamster ovary cells (CHO), in conjunction with a vector such as the major intermediate early gene promoter element from human cytomegalovirus is an effective expression system for antibodies (Foecking et al., Gene 45:101 (1986); Cockett et al., Bio/Technology 8:2 (1990)).

In bacterial systems, a number of expression vectors may be advantageously selected depending upon the use intended for the antibody molecule being expressed. For example, when a large quantity of such a protein is to be produced, for the generation of pharmaceutical compositions of an antibody molecule, vectors which direct the expression of high levels of fusion protein products that are readily purified may be desirable. Such vectors include, but are not limited, to the E. coli expression vector pUR278 (Ruther et al., EMBO J. 2:1791 (1983)), in which the antibody coding sequence may be ligated individually into the vector in frame with the lac Z coding region so that a fusion protein is produced; pIN vectors (Inouye & Inouye, Nucleic Acids Res. 13:3101-3109 (1985); Van Heeke & Schuster, J. Biol. Chem. 24:5503-5509 (1989)); and the like. pGEX vectors may also be used to express foreign polypeptides as fusion proteins with glutathione S-transferase (GST). In general, such fusion proteins are soluble and can easily be purified from lysed cells by adsorption and binding to matrix glutathione-agarose beads followed by elution in the presence of free glutathione. The pGEX vectors are designed to include thrombin or factor Xa protease cleavage sites so that the cloned target gene product can be released from the GST moiety.

In an insect system, Autographa californica nuclear polyhedrosis virus (AcNPV) is used as a vector to express foreign genes. The virus grows in

Spodoptera frugiperda cells. The antibody coding sequence may be cloned individually into non-essential regions (for example the polyhedrin gene) of the virus and placed under control of an AcNPV promoter (for example the polyhedrin promoter).

In mammalian host cells, a number of viral-based expression systems may be utilized. In cases where an adenovirus is used as an expression vector, the antibody coding sequence of interest may be ligated to an adenovirus transcription/translation control complex, e.g., the late promoter and tripartite leader sequence. This chimeric gene may then be inserted in the adenovirus genome by in vitro or in vivo recombination. Insertion in a non- essential region of the viral genome (e.g., region E1 or E3) will result in a recombinant virus that is viable and capable of expressing the antibody molecule in infected hosts. (e.g., see Logan & Shenk, Proc. Natl. Acad. Sci. USA 81:355-359 (1984)). Specific initiation signals may also be required for efficient translation of inserted antibody coding sequences. These signals include the ATG initiation codon and adjacent sequences. Furthermore, the initiation codon must be in phase with the reading frame of the desired coding sequence to ensure translation of the entire insert. These exogenous translational control signals and initiation codons can be of a variety of origins, both natural and synthetic. The efficiency of expression may be enhanced by the inclusion of appropriate transcription enhancer elements, transcription terminators, etc. (see Bittner et al.. Methods in Enzymol. 153:51-544 (1987)).

In addition, a host cell strain may be chosen which modulates the expression of the inserted sequences, or modifies and processes the gene product in the specific fashion desired. Such modifications (e.g., glycosylation) and processing (e.g., cleavage) of protein products may be important for the function of the protein. Different host cells have characteristic and specific mechanisms for the post-translational processing and modification of proteins and gene products. Appropriate cell lines or host systems can be chosen to ensure the correct modification and processing of the foreign protein expressed. To this end, eukaryotic host cells which possess the cellular machinery for proper processing of the primary transcript.

glycosylation, and phosphorylation of the gene product may be used. Such mammalian host cells include but are not limited to CHO, VERY, BHK, Hela, COS, MDCK, 293, 3T3, WI38, and in particular, breast cancer cell lines such as, for example, BT483, Hs578T, HTB2, BT20 and T47D, and normal mammary gland cell line such as, for example, CRL7030 and Hs578Bst.

For long-term, high-yield production of recombinant proteins, stable expression is preferred. For example, cell lines which stably express the antibody molecule may be engineered. Rather than using expression vectors which contain viral origins of replication, host cells can be transformed with DNA controlled by appropriate expression control elements (e.g., promoter, enhancer, sequences, transcription terminators, polyadenylation sites, etc.), and a selectable marker. Following the introduction of the foreign DNA, engineered cells may be allowed to grow for 1-2 days in an enriched media, and then are switched to a selective media. The selectable marker in the recombinant plasmid confers resistance to the selection and allows cells to stably integrate the plasmid into their chromosomes and grow to form foci which in turn can be cloned and expanded into cell lines. This method may advantageously be used to engineer cell lines which express the antibody molecule. Such engineered cell lines may be particularly useful in screening and evaluation of compounds that interact directly or indirectly with the antibody molecule.

A number of selection systems may be used, including but not limited to the herpes simplex virus thymidine kinase (Wigler et al., Cell 11:223 (1977)), hypoxanthine-guanine phosphoribosyltransferase (Szybalska & Szybalski, Proc. Natl. Acad. Sci. USA 48:202 (1992)), and adenine phosphoribosyltransferase (Lowy et al., Cell 22:817 (1980)) genes can be employed in tk-, hgprt- or aprt- cells, respectively. Also, antimetabolite resistance can be used as the basis of selection for the following genes: dhfr, which confers resistance to methotrexate (Wigler et al., Natl. Acad. Sci. USA 77:357 (1980); O'Hare et al., Proc. Natl. Acad. Sci. USA 78:1527 (1981)); gpt, which confers resistance to mycophenolic acid (Mulligan & Berg, Proc. Natl. Acad. Sci. USA 78:2072 (1981)); neo, which confers resistance to the aminoglycoside G-418 Clinical Pharmacy 12:488-505; Wu and Wu, Biotherapy 3:87-95 (1991);

Tolstoshev, Ann. Rev. Pharmacol. Toxicol. 32:573-596 (1993); Mulligan, Science 260:926-932 (1993); and Morgan and Anderson, Ann. Rev. Biochem. 62:191-217 (1993); May, 1993, TIB TECH 11(5):155-215); and hygro, which confers resistance to hygromycin (Santerre et al., Gene 30:147 (1984)). Methods commonly known in the art of recombinant DNA technology may be routinely applied to select the desired recombinant clone, and such methods are described, for example, in Ausubel et al. (eds.), Current Protocols in Molecular Biology, John Wiley & Sons, NY (1993); Kriegler, Gene Transfer and Expression, A Laboratory Manual, Stockton Press, NY (1990); and in Chapters 12 and 13, Dracopoli et al. (eds), Current Protocols in Human Genetics, John Wiley & Sons, NY (1994); Colberre-Garapin et al., J. Mol. Biol. 150:1 (1981), which are incorporated by reference herein in their entireties.

The expression levels of an antibody molecule can be increased by vector amplification (for a review, see Bebbington and Hentschel, The use of vectors based on gene amplification for the expression of cloned genes in mammalian cells in DNA cloning, Vol.3. (Academic Press, New York, 1987)). When a marker in the vector system expressing antibody is amplifiable, increase in the level of inhibitor present in culture of host cell will increase the number of copies of the marker gene. Since the amplified region is associated with the antibody gene, production of the antibody will also increase (Crouse et al., Mol. Cell. Biol. 3:257 (1983)).

The host cell may be co-transfected with two expression vectors of the invention, the first vector encoding a heavy chain derived polypeptide and the second vector encoding a light chain derived polypeptide. The two vectors may contain identical selectable markers which enable equal expression of heavy and light chain polypeptides. Alternatively, a single vector may be used which encodes, and is capable of expressing, both heavy and light chain polypeptides. In such situations, the light chain should be placed before the heavy chain to avoid an excess of toxic free heavy chain (Proudfoot, Nature 322:52 (1986); Kohler, Proc. Natl. Acad. Sci. USA 77:2197 (1980)). The coding sequences for the heavy and light chains may comprise cDNA or genomic DNA.

Once an antibody molecule of the invention has been produced by an animal, chemically synthesized, or recombinantly expressed, it may be purified by any method known in the art for purification of an immunoglobulin molecule, for example, by chromatography (e.g., ion exchange, affinity, particularly by affinity for the specific antigen after Protein A, and sizing column chromatography), centrifugation, differential solubility, or by any other standard technique for the purification of proteins. In addition, the antibodies of the present invention or fragments thereof can be fused to heterologous polypeptide sequences described herein or otherwise known in the art, to facilitate purification.

The present invention encompasses antibodies recombinantly fused or chemically conjugated (including both covalently and non-covalently conjugations) to a polypeptide (or portion thereof, preferably at least 10, 20, 30, 40, 50, 60, 70, 80, 90 or 100 amino acids of the polypeptide) of the present invention to generate fusion proteins. The fusion does not necessarily need to be direct, but may occur through linker sequences. The antibodies may be specific for antigens other than polypeptides (or portion thereof, preferably at least 10, 20, 30, 40, 50, 60, 70, 80, 90 or 100 amino acids of the polypeptide) of the present invention. For example, antibodies may be used to target the polypeptides of the present invention to particular cell types, either in vitro or in vivo, by fusing or conjugating the polypeptides of the present invention to antibodies specific for particular cell surface receptors. Antibodies fused or conjugated to the polypeptides of the present invention may also be used in in vitro immunoassays and purification methods using methods known in the art. See e.g., Harbor et al., supra, and PCT publication WO 93/21232; EP 439,095; Naramura et al., Immunol. Lett. 39:91-99 (1994); U.S. Patent 5,474,981; Gillies et al., PNAS 89:1428-1432 (1992); Fell et al., J. Immunol. 146:2446-2452(1991), which are incorporated by reference in their entireties.

The present invention further includes compositions comprising the polypeptides of the present invention fused or conjugated to antibody domains other than the variable regions. For example, the polypeptides of the present invention may be fused or conjugated to an antibody Fc region, or portion thereof. The antibody

portion fused to a polypeptide of the present invention may comprise the constant region. hinge region. CH1 domain, CH2 domain. and CH3 domain or any combination of whole domains or portions thereof. The polypeptides may also be fused or conjugated to the above antibody portions to form multimers. For example. Fc portions fused to the polypeptides of the present invention can form dimers through disulfide bonding between the Fc portions. Higher multimeric forms can be made by fusing the polypeptides to portions of IgA and IgM. Methods for fusing or conjugating the polypeptides of the present invention to antibody portions are known in the art. See, e.g., U.S. Patent Nos. 5,336,603; 5,622,929; 5,359,046; 5,349,053; 5,447,851; 5,112,946; EP 307,434; EP 367,166; PCT publications WO 96/04388; WO 91/06570; Ashkenazi et al., Proc. Natl. Acad. Sci. USA 88:10535-10539 (1991); Zheng et al., J. Immunol. 154:5590-5600 (1995); and Vil et al., Proc. Natl. Acad. Sci. USA 89:11337- 11341(1992) (said references incorporated by reference in their entireties).

As discussed, supra, the polypeptides corresponding to a polypeptide, polypeptide fragment, or a variant of SEQ ID NO:Y may be fused or conjugated to the above antibody portions to increase the in vivo half life of the polypeptides or for use in immunoassays using methods known in the art. Further, the polypeptides corresponding to SEQ ID NO:Y may be fused or conjugated to the above antibody portions to facilitate purification. One reported example describes chimeric proteins consisting of the first two domains of the human CD4-polypeptide and various domains of the constant regions of the heavy or light chains of mammalian immunoglobulins. (EP 394,827; Traunecker et al., Nature 331:84-86 (1988). The polypeptides of the present invention fused or conjugated to an antibody having disulfide- linked dimeric structures (due to the IgG) may also be more efficient in binding and neutralizing other molecules, than the monomeric secreted protein or protein fragment alone. (Fountoulakis et al.. J. Biochem. 270:3958-3964 (1995)). In many cases, the Fc part in a fusion protein is beneficial in therapy and diagnosis. and thus can result in, for example, improved pharmacokinetic properties. (EP A 232,262). Alternatively, deleting the Fc part after the fusion protein has been

expressed, detected, and purified, would be desired. For example, the Fc portion may hinder therapy and diagnosis if the fusion protein is used as an antigen for immunizations. In drug discovery, for example, human proteins, such as hIL-5, have been fused with Fc portions for the purpose of high-throughput screening assays to identify antagonists of hIL-5. (See, Bennett et al., J. Molecular Recognition 8:52-58 (1995); Johanson et al., J. Biol. Chem. 270:9459-9471 (1995).

Moreover, the antibodies or fragments thereof of the present invention can be fused to marker sequences, such as a peptide to facilitate purification. In preferred embodiments, the marker amino acid sequence is a hexa-histidine peptide, such as the tag provided in a pQE vector (QIAGEN, Inc., 9259 Eton Avenue, Chatsworth, CA, 91311), among others, many of which are commercially available. As described in Gentz et al., Proc. Natl. Acad. Sci. USA 86:821-824 (1989), for instance, hexa-histidine provides for convenient purification of the fusion protein. Other peptide tags useful for purification include, but are not limited to, the "HA" tag, which corresponds to an epitope derived from the influenza hemagglutinin protein (Wilson et al., Cell 37:767 (1984)) and the "flag" tag.

The present invention further encompasses antibodies or fragments thereof conjugated to a diagnostic or therapeutic agent. The antibodies can be used diagnostically to, for example, monitor the development or progression of a tumor as part of a clinical testing procedure to, e.g., determine the efficacy of a given treatment regimen. Detection can be facilitated by coupling the antibody to a detectable substance. Examples of detectable substances include various enzymes, prosthetic groups, fluorescent materials, luminescent materials, bioluminescent materials, radioactive materials, positron emitting metals using various positron emission tomographies, and nonradioactive paramagnetic metal ions. The detectable substance may be coupled or conjugated either directly to the antibody (or fragment thereof) or indirectly, through an intermediate (such as, for example, a linker known in the art) using techniques known in the art. See, for example, U.S. Patent No. 4,741,900 for metal ions which can be conjugated to antibodies for use as diagnostics according to the present invention. Examples of suitable enzymes include horseradish

peroxidase, alkaline phosphatase, beta-galactosidase, or acetylcholinesterase; examples of suitable prosthetic group complexes include streptavidin/biotin and avidin/biotin; examples of suitable fluorescent materials include umbelliferone, fluorescein, fluorescein isothiocyanate, rhodamine, dichlorotriazinylamine fluorescein, dansyl chloride or phycoerythrin; an example of a luminescent material includes luminol; examples of bioluminescent materials include luciferase, luciferin, and aequorin; and examples of suitable radioactive material include 125I, 131I, 111In or 99Tc.

Further, an antibody or fragment thereof may be conjugated to a therapeutic moiety such as a cytotoxin, e.g., a cytostatic or cytocidal agent, a therapeutic agent or a radioactive metal ion, e.g., alpha-emitters such as, for example, 213Bi. A cytotoxin or cytotoxic agent includes any agent that is detrimental to cells. Examples include paclitaxol, cytochalasin B, gramicidin D, ethidium bromide, emetine, mitomycin, etoposide, tenoposide, vincristine, vinblastine, colchicin, doxorubicin, daunorubicin, dihydroxy anthracin dione, mitoxantrone, mithramycin, actinomycin D, 1-dehydrotestosterone, glucocorticoids, procaine, tetracaine, lidocaine, propranolol, and puromycin and analogs or homologs thereof. Therapeutic agents include, but are not limited to, antimetabolites (e.g., methotrexate, 6-mercaptopurine, 6-thioguanine, cytarabine, 5-fluorouracil decarbazine), alkylating agents (e.g., mechlorethamine, thioepa chlorambucil, melphalan, carmustine (BSNU) and lomustine (CCNU), cyclothosphamide, busulfan, dibromomannitol, streptozotocin, mitomycin C, and cis-dichlorodiamine platinum (II) (DDP) cisplatin), anthracyclines (e.g., daunorubicin (formerly daunomycin) and doxorubicin), antibiotics (e.g., dactinomycin (formerly actinomycin), bleomycin, mithramycin, and anthramycin (AMC)), and anti-mitotic agents (e.g., vincristine and vinblastine).

The conjugates of the invention can be used for modifying a given biological response. the therapeutic agent or drug moiety is not to be construed as limited to classical chemical therapeutic agents. For example, the drug moiety may be a protein or polypeptide possessing a desired biological activity. Such proteins may include, for example, a toxin such as abrin, ricin A, pseudomonas exotoxin, or diphtheria

toxin; a protein such as tumor necrosis factor, a-interferon, ß-interferon, nerve growth factor, platelet derived growth factor, tissue plasminogen activator, an apoptotic agent, e.g., TNF-alpha, TNF-beta, AIM I (See, International Publication No. WO 97/33899), AIM II (See, International Publication No. WO 97/34911), Fas Ligand (Takahashi *et al., Int. Immunol., 6*:1567-1574 (1994)), VEGI (See, International Publication No. WO 99/23105), a thrombotic agent or an anti-angiogenic agent, e.g., angiostatin or endostatin; or, biological response modifiers such as, for example, lymphokines, interleukin-1 ("IL-1"), interleukin-2 ("IL-2"), interleukin-6 ("IL-6"), granulocyte macrophage colony stimulating factor ("GM-CSF"), granulocyte colony stimulating factor ("G-CSF"), or other growth factors.

Antibodies may also be attached to solid supports, which are particularly useful for immunoassays or purification of the target antigen. Such solid supports include, but are not limited to, glass, cellulose, polyacrylamide, nylon, polystyrene, polyvinyl chloride or polypropylene.

Techniques for conjugating such therapeutic moiety to antibodies are well known, see, e.g., Arnon et al., "Monoclonal Antibodies For Immunotargeting Of Drugs In Cancer Therapy", in Monoclonal Antibodies And Cancer Therapy, Reisfeld et al. (eds.), pp. 243-56 (Alan R. Liss, Inc. 1985); Hellstrom et al., "Antibodies For Drug Delivery", in Controlled Drug Delivery (2nd Ed.), Robinson et al. (eds.), pp. 623-53 (Marcel Dekker, Inc. 1987); Thorpe, "Antibody Carriers Of Cytotoxic Agents In Cancer Therapy: A Review", in Monoclonal Antibodies '84: Biological And Clinical Applications, Pinchera et al. (eds.), pp. 475-506 (1985); "Analysis, Results, And Future Prospective Of The Therapeutic Use Of Radiolabeled Antibody In Cancer Therapy", in Monoclonal Antibodies For Cancer Detection And Therapy, Baldwin et al. (eds.), pp. 303-16 (Academic Press 1985), and Thorpe et al., "The Preparation And Cytotoxic Properties Of Antibody-Toxin Conjugates", Immunol. Rev. 62:119-58 (1982).

Alternatively, an antibody can be conjugated to a second antibody to form an antibody heteroconjugate as described by Segal in U.S. Patent No. 4,676,980, which is incorporated herein by reference in its entirety.

An antibody, with or without a therapeutic moiety conjugated to it, administered alone or in combination with cytotoxic factor(s) and/or cytokine(s) can be used as a therapeutic.

Immunophenotyping

The antibodies of the invention may be utilized for immunophenotyping of cell lines and biological samples. The translation product of the gene of the present invention may be useful as a cell specific marker, or more specifically as a cellular marker that is differentially expressed at various stages of differentiation and/or maturation of particular cell types. Monoclonal antibodies directed against a specific epitope, or combination of epitopes, will allow for the screening of cellular populations expressing the marker. Various techniques can be utilized using monoclonal antibodies to screen for cellular populations expressing the marker(s), and include magnetic separation using antibody-coated magnetic beads, "panning" with antibody attached to a solid matrix (i.e., plate), and flow cytometry (See, e.g., U.S. Patent 5,985,660; and Morrison *et al., Cell, 96*:737-49 (1999)).

These techniques allow for the screening of particular populations of cells, such as might be found with hematological malignancies (i.e. minimal residual disease (MRD) in acute leukemic patients) and "non-self" cells in transplantations to prevent Graft-versus-Host Disease (GVHD). Alternatively, these techniques allow for the screening of hematopoietic stem and progenitor cells capable of undergoing proliferation and/or differentiation. as might be found in human umbilical cord blood.

Assays For Antibody Binding

The antibodies of the invention may be assayed for immunospecific binding by any method known in the art. The immunoassays which can be used include but are not limited to competitive and non-competitive assay systems using techniques such as western blots, radioimmunoassays, ELISA (enzyme linked immunosorbent assay), "sandwich" immunoassays, immunoprecipitation assays, precipitin reactions, gel diffusion precipitin reactions. immunodiffusion assays. agglutination assays,

complement-fixation assays, immunoradiometric assays, fluorescent immunoassays, protein A immunoassays, to name but a few. Such assays are routine and well known in the art (see, e.g., Ausubel et al, eds, 1994, Current Protocols in Molecular Biology, Vol. 1, John Wiley & Sons, Inc., New York, which is incorporated by reference herein in its entirety). Exemplary immunoassays are described briefly below (but are not intended by way of limitation).

Immunoprecipitation protocols generally comprise lysing a population of cells in a lysis buffer such as RIPA buffer (1% NP-40 or Triton X- 100, 1% sodium deoxycholate, 0.1% SDS, 0.15 M NaCl, 0.01 M sodium phosphate at pH 7.2, 1% Trasylol) supplemented with protein phosphatase and/or protease inhibitors (e.g., EDTA, PMSF, aprotinin, sodium vanadate), adding the antibody of interest to the cell lysate, incubating for a period of time (e.g., 1-4 hours) at 4° C, adding protein A and/or protein G sepharose beads to the cell lysate, incubating for about an hour or more at 4° C, washing the beads in lysis buffer and resuspending the beads in SDS/sample buffer. The ability of the antibody of interest to immunoprecipitate a particular antigen can be assessed by, e.g., western blot analysis. One of skill in the art would be knowledgeable as to the parameters that can be modified to increase the binding of the antibody to an antigen and decrease the background (e.g., pre-clearing the cell lysate with sepharose beads). For further discussion regarding immunoprecipitation protocols see, e.g., Ausubel et al. eds, 1994, Current Protocols in Molecular Biology, Vol. 1, John Wiley & Sons, Inc., New York at 10.16.1.

Western blot analysis generally comprises preparing protein samples, electrophoresis of the protein samples in a polyacrylamide gel (e.g., 8%- 20% SDS-PAGE depending on the molecular weight of the antigen), transferring the protein sample from the polyacrylamide gel to a membrane such as nitrocellulose, PVDF or nylon, blocking the membrane in blocking solution (e.g., PBS with 3% BSA or non-fat milk), washing the membrane in washing buffer (e.g., PBS-Tween 20), blocking the membrane with primary antibody (the antibody of interest) diluted in blocking buffer, washing the membrane in washing buffer, blocking the membrane with a secondary antibody (which recognizes the primary antibody, e.g., an anti-human

antibody) conjugated to an enzymatic substrate (e.g., horseradish peroxidase or alkaline phosphatase) or radioactive molecule (e.g., 32P or 125I) diluted in blocking buffer, washing the membrane in wash buffer, and detecting the presence of the antigen. One of skill in the art would be knowledgeable as to the parameters that can be modified to increase the signal detected and to reduce the background noise. For further discussion regarding western blot protocols see, e.g., Ausubel et al. eds. 1994, Current Protocols in Molecular Biology, Vol. 1, John Wiley & Sons, Inc., New York at 10.8.1.

ELISAs comprise preparing antigen, coating the well of a 96 well microtiter plate with the antigen, adding the antibody of interest conjugated to a detectable compound such as an enzymatic substrate (e.g., horseradish peroxidase or alkaline phosphatase) to the well and incubating for a period of time, and detecting the presence of the antigen. In ELISAs the antibody of interest does not have to be conjugated to a detectable compound; instead, a second antibody (which recognizes the antibody of interest) conjugated to a detectable compound may be added to the well. Further, instead of coating the well with the antigen, the antibody may be coated to the well. In this case, a second antibody conjugated to a detectable compound may be added following the addition of the antigen of interest to the coated well. One of skill in the art would be knowledgeable as to the parameters that can be modified to increase the signal detected as well as other variations of ELISAs known in the art. For further discussion regarding ELISAs see, e.g., Ausubel et al, eds, 1994, Current Protocols in Molecular Biology, Vol. 1, John Wiley & Sons, Inc., New York at 11.2.1.

The binding affinity of an antibody to an antigen and the off-rate of an antibody-antigen interaction can be determined by competitive binding assays. One example of a competitive binding assay is a radioimmunoassay comprising the incubation of labeled antigen (e.g., 3H or 125I) with the antibody of interest in the presence of increasing amounts of unlabeled antigen, and the detection of the antibody bound to the labeled antigen. The affinity of the antibody of interest for a particular antigen and the binding off-rates can be determined from the data by

scatchard plot analysis. Competition with a second antibody can also be determined using radioimmunoassays. In this case. the antigen is incubated with antibody of interest conjugated to a labeled compound (e.g., 3H or 125I) in the presence of increasing amounts of an unlabeled second antibody.

Therapeutic Uses

The present invention is further directed to antibody-based therapies which involve administering antibodies of the invention to an animal, preferably a mammal, and most preferably a human, patient for treating one or more of the disclosed diseases, disorders, or conditions. Therapeutic compounds of the invention include, but are not limited to, antibodies of the invention (including fragments, analogs and derivatives thereof as described herein) and nucleic acids encoding antibodies of the invention (including fragments, analogs and derivatives thereof and anti-idiotypic antibodies as described herein). The antibodies of the invention can be used to treat, inhibit or prevent diseases, disorders or conditions associated with aberrant expression and/or activity of a polypeptide of the invention, including, but not limited to, any one or more of the diseases, disorders, or conditions described herein. The treatment and/or prevention of diseases, disorders, or conditions associated with aberrant expression and/or activity of a polypeptide of the invention includes, but is not limited to, alleviating symptoms associated with those diseases, disorders or conditions. Antibodies of the invention may be provided in pharmaceutically acceptable compositions as known in the art or as described herein.

A summary of the ways in which the antibodies of the present invention may be used therapeutically includes binding polynucleotides or polypeptides of the present invention locally or systemically in the body or by direct cytotoxicity of the antibody, e.g. as mediated by complement (CDC) or by effector cells (ADCC). Some of these approaches are described in more detail below. Armed with the teachings provided herein, one of ordinary skill in the art will know how to use the antibodies of the present invention for diagnostic, monitoring or therapeutic purposes without undue experimentation.

The antibodies of this invention may be advantageously utilized in combination with other monoclonal or chimeric antibodies, or with lymphokines or hematopoietic growth factors (such as, e.g., IL-2, IL-3 and IL-7), for example, which serve to increase the number or activity of effector cells which interact with the antibodies.

The antibodies of the invention may be administered alone or in combination with other types of treatments (e.g., radiation therapy, chemotherapy, hormonal therapy, immunotherapy and anti-tumor agents). Generally, administration of products of a species origin or species reactivity (in the case of antibodies) that is the same species as that of the patient is preferred. Thus, in a preferred embodiment, human antibodies, fragments derivatives, analogs, or nucleic acids, are administered to a human patient for therapy or prophylaxis.

It is preferred to use high affinity and/or potent in vivo inhibiting and/or neutralizing antibodies against polypeptides or polynucleotides of the present invention, fragments or regions thereof, for both immunoassays directed to and therapy of disorders related to polynucleotides or polypeptides, including fragments thereof. of the present invention. Such antibodies, fragments, or regions, will preferably have an affinity for polynucleotides or polypeptides of the invention, including fragments thereof. Preferred binding affinities include those with a dissociation constant or Kd less than 5×10^{-2} M, 10^{-2} M, 5×10^{-3} M, 10^{-3} M, 5×10^{-4} M, 10^{-4} M, 5×10^{-5} M, 10^{-5} M, 5×10^{-6} M, 10^{-6} M, 5×10^{-7} M, 10^{-7} M, 5×10^{-8} M, 10^{-8} M, 5×10^{-9} M, 10^{-9} M, 5×10^{-10} M, 10^{-10} M, 5×10^{-11} M, 10^{-11} M, 5×10^{-12} M, 10^{-12} M, 5×10^{-13} M, 10^{-13} M, 5×10^{-14} M, 10^{-14} M, 5×10^{-15} M, and 10^{-15} M.

Gene Therapy

In a specific embodiment, nucleic acids comprising sequences encoding antibodies or functional derivatives thereof, are administered to treat, inhibit or prevent a disease or disorder associated with aberrant expression and/or activity of a polypeptide of the invention, by way of gene therapy. Gene therapy refers to therapy performed by the administration to a subject of an expressed or expressible nucleic

acid. In this embodiment of the invention, the nucleic acids produce their encoded protein that mediates a therapeutic effect.

Any of the methods for gene therapy available in the art can be used according to the present invention. Exemplary methods are described below.

For general reviews of the methods of gene therapy, see Goldspiel et al., Clinical Pharmacy 12:488-505 (1993); Wu and Wu, Biotherapy 3:87-95 (1991); Tolstoshev, Ann. Rev. Pharmacol. Toxicol. 32:573-596 (1993); Mulligan, Science 260:926-932 (1993); and Morgan and Anderson, Ann. Rev. Biochem. 62:191-217 (1993); May, TIBTECH 11(5):155-215 (1993). Methods commonly known in the art of recombinant DNA technology which can be used are described in Ausubel et al. (eds.), Current Protocols in Molecular Biology, John Wiley & Sons, NY (1993); and Kriegler, Gene Transfer and Expression, A Laboratory Manual, Stockton Press, NY (1990).

In a preferred aspect, the compound comprises nucleic acid sequences encoding an antibody, said nucleic acid sequences being part of expression vectors that express the antibody or fragments or chimeric proteins or heavy or light chains thereof in a suitable host. In particular, such nucleic acid sequences have promoters operably linked to the antibody coding region, said promoter being inducible or constitutive, and, optionally, tissue-specific. In another particular embodiment, nucleic acid molecules are used in which the antibody coding sequences and any other desired sequences are flanked by regions that promote homologous recombination at a desired site in the genome, thus providing for intrachromosomal expression of the antibody encoding nucleic acids (Koller and Smithies, Proc. Natl. Acad. Sci. USA 86:8932-8935 (1989); Zijlstra et al., Nature 342:435-438 (1989). In specific embodiments, the expressed antibody molecule is a single chain antibody; alternatively, the nucleic acid sequences include sequences encoding both the heavy and light chains, or fragments thereof, of the antibody.

Delivery of the nucleic acids into a patient may be either direct, in which case the patient is directly exposed to the nucleic acid or nucleic acid- carrying vectors, or indirect, in which case, cells are first transformed with the nucleic acids in vitro, then

transplanted into the patient. These two approaches are known, respectively, as in vivo or ex vivo gene therapy.

In a specific embodiment, the nucleic acid sequences are directly administered in vivo, where it is expressed to produce the encoded product. This can be accomplished by any of numerous methods known in the art, e.g., by constructing them as part of an appropriate nucleic acid expression vector and administering it so that they become intracellular, e.g., by infection using defective or attenuated retrovirals or other viral vectors (see U.S. Patent No. 4,980,286), or by direct injection of naked DNA, or by use of microparticle bombardment (e.g., a gene gun; Biolistic, Dupont), or coating with lipids or cell-surface receptors or transfecting agents, encapsulation in liposomes, microparticles, or microcapsules, or by administering them in linkage to a peptide which is known to enter the nucleus, by administering it in linkage to a ligand subject to receptor-mediated endocytosis (see, e.g., Wu and Wu, J. Biol. Chem. 262:4429-4432 (1987)) (which can be used to target cell types specifically expressing the receptors), etc. In another embodiment, nucleic acid-ligand complexes can be formed in which the ligand comprises a fusogenic viral peptide to disrupt endosomes, allowing the nucleic acid to avoid lysosomal degradation. In yet another embodiment, the nucleic acid can be targeted in vivo for cell specific uptake and expression, by targeting a specific receptor (see, e.g., PCT Publications WO 92/06180; WO 92/22635; WO92/20316; WO93/14188, WO 93/20221). Alternatively, the nucleic acid can be introduced intracellularly and incorporated within host cell DNA for expression, by homologous recombination (Koller and Smithies, Proc. Natl. Acad. Sci. USA 86:8932-8935 (1989); Zijlstra et al., Nature 342:435-438 (1989)).

In a specific embodiment, viral vectors that contains nucleic acid sequences encoding an antibody of the invention are used. For example, a retroviral vector can be used (see Miller et al., Meth. Enzymol. 217:581-599 (1993)). These retroviral vectors contain the components necessary for the correct packaging of the viral genome and integration into the host cell DNA. The nucleic acid sequences encoding the antibody to be used in gene therapy are cloned into one or more vectors, which

facilitates delivery of the gene into a patient. More detail about retroviral vectors can be found in Boesen et al., Biotherapy 6:291-302 (1994), which describes the use of a retroviral vector to deliver the mdr1 gene to hematopoietic stem cells in order to make the stem cells more resistant to chemotherapy. Other references illustrating the use of retroviral vectors in gene therapy are: Clowes et al., J. Clin. Invest. 93:644-651 (1994); Kiem et al., Blood 83:1467-1473 (1994); Salmons and Gunzberg, Human Gene Therapy 4:129-141 (1993); and Grossman and Wilson, Curr. Opin. in Genetics and Devel. 3:110-114 (1993).

Adenoviruses are other viral vectors that can be used in gene therapy. Adenoviruses are especially attractive vehicles for delivering genes to respiratory epithelia. Adenoviruses naturally infect respiratory epithelia where they cause a mild disease. Other targets for adenovirus-based delivery systems are liver, the central nervous system, endothelial cells, and muscle. Adenoviruses have the advantage of being capable of infecting non-dividing cells. Kozarsky and Wilson, Current Opinion in Genetics and Development 3:499-503 (1993) present a review of adenovirus-based gene therapy. Bout et al., Human Gene Therapy 5:3-10 (1994) demonstrated the use of adenovirus vectors to transfer genes to the respiratory epithelia of rhesus monkeys. Other instances of the use of adenoviruses in gene therapy can be found in Rosenfeld et al., Science 252:431-434 (1991); Rosenfeld et al., Cell 68:143- 155 (1992); Mastrangeli et al., J. Clin. Invest. 91:225-234 (1993); PCT Publication WO94/12649; and Wang, et al., Gene Therapy 2:775-783 (1995). In a preferred embodiment, adenovirus vectors are used.

Adeno-associated virus (AAV) has also been proposed for use in gene therapy (Walsh et al., Proc. Soc. Exp. Biol. Med. 204:289-300 (1993); U.S. Patent No. 5,436,146).

Another approach to gene therapy involves transferring a gene to cells in tissue culture by such methods as electroporation, lipofection, calcium phosphate mediated transfection, or viral infection. Usually, the method of transfer includes the transfer of a selectable marker to the cells. The cells are then placed under selection

to isolate those cells that have taken up and are expressing the transferred gene. Those cells are then delivered to a patient.

In this embodiment, the nucleic acid is introduced into a cell prior to administration in vivo of the resulting recombinant cell. Such introduction can be carried out by any method known in the art, including but not limited to transfection, electroporation, microinjection, infection with a viral or bacteriophage vector containing the nucleic acid sequences, cell fusion, chromosome-mediated gene transfer, microcell-mediated gene transfer, spheroplast fusion, etc. Numerous techniques are known in the art for the introduction of foreign genes into cells (see, e.g., Loeffler and Behr, Meth. Enzymol. 217:599-618 (1993); Cohen et al., Meth. Enzymol. 217:618-644 (1993); Cline, Pharmac. Ther. 29:69-92m (1985) and may be used in accordance with the present invention, provided that the necessary developmental and physiological functions of the recipient cells are not disrupted. The technique should provide for the stable transfer of the nucleic acid to the cell, so that the nucleic acid is expressible by the cell and preferably heritable and expressible by its cell progeny.

The resulting recombinant cells can be delivered to a patient by various methods known in the art. Recombinant blood cells (e.g., hematopoietic stem or progenitor cells) are preferably administered intravenously. The amount of cells envisioned for use depends on the desired effect, patient state, etc., and can be determined by one skilled in the art.

Cells into which a nucleic acid can be introduced for purposes of gene therapy encompass any desired, available cell type, and include but are not limited to epithelial cells, endothelial cells, keratinocytes, fibroblasts, muscle cells, hepatocytes; blood cells such as Tlymphocytes, Blymphocytes, monocytes, macrophages, neutrophils, eosinophils, megakaryocytes, granulocytes; various stem or progenitor cells, in particular hematopoietic stem or progenitor cells, e.g., as obtained from bone marrow, umbilical cord blood, peripheral blood, fetal liver, etc.

In a preferred embodiment, the cell used for gene therapy is autologous to the patient.

In an embodiment in which recombinant cells are used in gene therapy, nucleic acid sequences encoding an antibody are introduced into the cells such that they are expressible by the cells or their progeny, and the recombinant cells are then administered in vivo for therapeutic effect. In a specific embodiment, stem or progenitor cells are used. Any stem and/or progenitor cells which can be isolated and maintained in vitro can potentially be used in accordance with this embodiment of the present invention (see e.g. PCT Publication WO 94/08598; Stemple and Anderson, Cell 71:973-985 (1992); Rheinwald, Meth. Cell Bio. 21A:229 (1980); and Pittelkow and Scott, Mayo Clinic Proc. 61:771 (1986)).

In a specific embodiment, the nucleic acid to be introduced for purposes of gene therapy comprises an inducible promoter operably linked to the coding region, such that expression of the nucleic acid is controllable by controlling the presence or absence of the appropriate inducer of transcription. Demonstration of Therapeutic or Prophylactic Activity

The compounds or pharmaceutical compositions of the invention are preferably tested in vitro, and then in vivo for the desired therapeutic or prophylactic activity, prior to use in humans. For example, in vitro assays to demonstrate the therapeutic or prophylactic utility of a compound or pharmaceutical composition include, the effect of a compound on a cell line or a patient tissue sample. The effect of the compound or composition on the cell line and/or tissue sample can be determined utilizing techniques known to those of skill in the art including, but not limited to, rosette formation assays and cell lysis assays. In accordance with the invention, in vitro assays which can be used to determine whether administration of a specific compound is indicated, include in vitro cell culture assays in which a patient tissue sample is grown in culture, and exposed to or otherwise administered a compound, and the effect of such compound upon the tissue sample is observed.

Therapeutic/Prophylactic Administration and Composition

The invention provides methods of treatment, inhibition and prophylaxis by administration to a subject of an effective amount of a compound or pharmaceutical

composition of the invention, preferably a polypeptide or antibody of the invention. In a preferred aspect, the compound is substantially purified (e.g., substantially free from substances that limit its effect or produce undesired side-effects). The subject is preferably an animal, including but not limited to animals such as cows, pigs, horses, chickens, cats, dogs, etc., and is preferably a mammal, and most preferably human.

Formulations and methods of administration that can be employed when the compound comprises a nucleic acid or an immunoglobulin are described above; additional appropriate formulations and routes of administration can be selected from among those described herein below.

Various delivery systems are known and can be used to administer a compound of the invention, e.g., encapsulation in liposomes, microparticles, microcapsules, recombinant cells capable of expressing the compound, receptor-mediated endocytosis (see, e.g., Wu and Wu, J. Biol. Chem. 262:4429-4432 (1987)), construction of a nucleic acid as part of a retroviral or other vector, etc. Methods of introduction include but are not limited to intradermal, intramuscular, intraperitoneal, intravenous, subcutaneous, intranasal, epidural, and oral routes. The compounds or compositions may be administered by any convenient route, for example by infusion or bolus injection, by absorption through epithelial or mucocutaneous linings (e.g., oral mucosa, rectal and intestinal mucosa, etc.) and may be administered together with other biologically active agents. Administration can be systemic or local. In addition, it may be desirable to introduce the pharmaceutical compounds or compositions of the invention into the central nervous system by any suitable route, including intraventricular and intrathecal injection; intraventricular injection may be facilitated by an intraventricular catheter, for example, attached to a reservoir, such as an Ommaya reservoir. Pulmonary administration can also be employed, e.g., by use of an inhaler or nebulizer, and formulation with an aerosolizing agent.

In a specific embodiment, it may be desirable to administer the pharmaceutical compounds or compositions of the invention locally to the area in need of treatment; this may be achieved by, for example, and not by way of limitation, local infusion during surgery, topical application, e.g., in conjunction with a wound dressing after

surgery, by injection, by means of a catheter, by means of a suppository, or by means of an implant, said implant being of a porous, non-porous, or gelatinous material, including membranes, such as sialastic membranes, or fibers. Preferably, when administering a protein, including an antibody, of the invention, care must be taken to use materials to which the protein does not absorb.

In another embodiment, the compound or composition can be delivered in a vesicle, in particular a liposome (see Langer, Science 249:1527-1533 (1990); Treat et al., in Liposomes in the Therapy of Infectious Disease and Cancer, Lopez-Berestein and Fidler (eds.), Liss, New York, pp. 353- 365 (1989); Lopez-Berestein, ibid., pp. 317-327; see generally ibid.)

In yet another embodiment, the compound or composition can be delivered in a controlled release system. In one embodiment, a pump may be used (see Langer, supra; Sefton, CRC Crit. Ref. Biomed. Eng. 14:201 (1987); Buchwald et al., Surgery 88:507 (1980); Saudek et al., N. Engl. J. Med. 321:574 (1989)). In another embodiment, polymeric materials can be used (see Medical Applications of Controlled Release, Langer and Wise (eds.), CRC Pres., Boca Raton, Florida (1974); Controlled Drug Bioavailability, Drug Product Design and Performance, Smolen and Ball (eds.), Wiley, New York (1984); Ranger and Peppas, J., Macromol. Sci. Rev. Macromol. Chem. 23:61 (1983); see also Levy et al., Science 228:190 (1985); During et al., Ann. Neurol. 25:351 (1989); Howard et al., J.Neurosurg. 71:105 (1989)). In yet another embodiment, a controlled release system can be placed in proximity of the therapeutic target, i.e., the brain, thus requiring only a fraction of the systemic dose (see, e.g., Goodson, in Medical Applications of Controlled Release, supra, vol. 2, pp. 115-138 (1984)).

Other controlled release systems are discussed in the review by Langer (Science 249:1527-1533 (1990)).

In a specific embodiment where the compound of the invention is a nucleic acid encoding a protein, the nucleic acid can be administered in vivo to promote expression of its encoded protein, by constructing it as part of an appropriate nucleic acid expression vector and administering it so that it becomes intracellular, e.g., by

use of a retroviral vector (see U.S. Patent No. 4,980,286), or by direct injection. or by use of microparticle bombardment (e.g., a gene gun; Biolistic, Dupont), or coating with lipids or cell-surface receptors or transfecting agents, or by administering it in linkage to a homeobox- like peptide which is known to enter the nucleus (see e.g., Joliot et al., Proc. Natl. Acad. Sci. USA 88:1864-1868 (1991)), etc. Alternatively, a nucleic acid can be introduced intracellularly and incorporated within host cell DNA for expression, by homologous recombination.

The present invention also provides pharmaceutical compositions. Such compositions comprise a therapeutically effective amount of a compound, and a pharmaceutically acceptable carrier. In a specific embodiment, the term "pharmaceutically acceptable" means approved by a regulatory agency of the Federal or a state government or listed in the U.S. Pharmacopeia or other generally recognized pharmacopeia for use in animals, and more particularly in humans. The term "carrier" refers to a diluent, adjuvant, excipient, or vehicle with which the therapeutic is administered. Such pharmaceutical carriers can be sterile liquids, such as water and oils, including those of petroleum, animal, vegetable or synthetic origin, such as peanut oil, soybean oil, mineral oil, sesame oil and the like. Water is a preferred carrier when the pharmaceutical composition is administered intravenously. Saline solutions and aqueous dextrose and glycerol solutions can also be employed as liquid carriers, particularly for injectable solutions. Suitable pharmaceutical excipients include starch, glucose, lactose, sucrose, gelatin, malt, rice, flour, chalk, silica gel, sodium stearate, glycerol monostearate, talc, sodium chloride, dried skim milk, glycerol, propylene, glycol, water, ethanol and the like. The composition, if desired, can also contain minor amounts of wetting or emulsifying agents, or pH buffering agents. These compositions can take the form of solutions, suspensions, emulsion, tablets, pills, capsules, powders, sustained-release formulations and the like. The composition can be formulated as a suppository, with traditional binders and carriers such as triglycerides. Oral formulation can include standard carriers such as pharmaceutical grades of mannitol, lactose, starch, magnesium stearate, sodium saccharine, cellulose, magnesium carbonate, etc. Examples of suitable

pharmaceutical carriers are described in "Remington's Pharmaceutical Sciences" by E.W. Martin. Such compositions will contain a therapeutically effective amount of the compound, preferably in purified form, together with a suitable amount of carrier so as to provide the form for proper administration to the patient. The formulation should suit the mode of administration.

In a preferred embodiment, the composition is formulated in accordance with routine procedures as a pharmaceutical composition adapted for intravenous administration to human beings. Typically, compositions for intravenous administration are solutions in sterile isotonic aqueous buffer. Where necessary, the composition may also include a solubilizing agent and a local anesthetic such as lignocaine to ease pain at the site of the injection. Generally, the ingredients are supplied either separately or mixed together in unit dosage form, for example, as a dry lyophilized powder or water free concentrate in a hermetically sealed container such as an ampoule or sachette indicating the quantity of active agent. Where the composition is to be administered by infusion, it can be dispensed with an infusion bottle containing sterile pharmaceutical grade water or saline. Where the composition is administered by injection, an ampoule of sterile water for injection or saline can be provided so that the ingredients may be mixed prior to administration.

The compounds of the invention can be formulated as neutral or salt forms. Pharmaceutically acceptable salts include those formed with anions such as those derived from hydrochloric, phosphoric, acetic, oxalic, tartaric acids, etc., and those formed with cations such as those derived from sodium, potassium, ammonium, calcium, ferric hydroxides, isopropylamine, triethylamine, 2-ethylamino ethanol, histidine, procaine, etc.

The amount of the compound of the invention which will be effective in the treatment, inhibition and prevention of a disease or disorder associated with aberrant expression and/or activity of a polypeptide of the invention can be determined by standard clinical techniques. In addition, in vitro assays may optionally be employed to help identify optimal dosage ranges. The precise dose to be employed in the formulation will also depend on the route of administration, and the seriousness of

the disease or disorder. and should be decided according to the judgment of the practitioner and each patient's circumstances. Effective doses may be extrapolated from dose-response curves derived from in vitro or animal model test systems.

For antibodies, the dosage administered to a patient is typically 0.1 mg/kg to 100 mg/kg of the patient's body weight. Preferably, the dosage administered to a patient is between 0.1 mg/kg and 20 mg/kg of the patient's body weight, more preferably 1 mg/kg to 10 mg/kg of the patient's body weight. Generally, human antibodies have a longer half-life within the human body than antibodies from other species due to the immune response to the foreign polypeptides. Thus, lower dosages of human antibodies and less frequent administration is often possible. Further, the dosage and frequency of administration of antibodies of the invention may be reduced by enhancing uptake and tissue penetration (e.g., into the brain) of the antibodies by modifications such as, for example, lipidation.

The invention also provides a pharmaceutical pack or kit comprising one or more containers filled with one or more of the ingredients of the pharmaceutical compositions of the invention. Optionally associated with such container(s) can be a notice in the form prescribed by a governmental agency regulating the manufacture, use or sale of pharmaceuticals or biological products, which notice reflects approval by the agency of manufacture, use or sale for human administration.

Diagnosis and Imaging

Labeled antibodies, and derivatives and analogs thereof, which specifically bind to a polypeptide of interest can be used for diagnostic purposes to detect, diagnose, or monitor diseases, disorders, and/or conditions associated with the aberrant expression and/or activity of a polypeptide of the invention. The invention provides for the detection of aberrant expression of a polypeptide of interest, comprising (a) assaying the expression of the polypeptide of interest in cells or body fluid of an individual using one or more antibodies specific to the polypeptide interest and (b) comparing the level of gene expression with a standard gene expression level,

whereby an increase or decrease in the assayed polypeptide gene expression level compared to the standard expression level is indicative of aberrant expression.

The invention provides a diagnostic assay for diagnosing a disorder, comprising (a) assaying the expression of the polypeptide of interest in cells or body fluid of an individual using one or more antibodies specific to the polypeptide interest and (b) comparing the level of gene expression with a standard gene expression level, whereby an increase or decrease in the assayed polypeptide gene expression level compared to the standard expression level is indicative of a particular disorder. With respect to cancer, the presence of a relatively high amount of transcript in biopsied tissue from an individual may indicate a predisposition for the development of the disease, or may provide a means for detecting the disease prior to the appearance of actual clinical symptoms. A more definitive diagnosis of this type may allow health professionals to employ preventative measures or aggressive treatment earlier thereby preventing the development or further progression of the cancer.

Antibodies of the invention can be used to assay protein levels in a biological sample using classical immunohistological methods known to those of skill in the art (e.g., see Jalkanen, et al., J. Cell. Biol. 101:976-985 (1985); Jalkanen, et al., J. Cell . Biol. 105:3087-3096 (1987)). Other antibody-based methods useful for detecting protein gene expression include immunoassays, such as the enzyme linked immunosorbent assay (ELISA) and the radioimmunoassay (RIA). Suitable antibody assay labels are known in the art and include enzyme labels, such as, glucose oxidase; radioisotopes, such as iodine (125I, 121I), carbon (14C), sulfur (35S), tritium (3H), indium (112In), and technetium (99Tc); luminescent labels, such as luminol; and fluorescent labels, such as fluorescein and rhodamine, and biotin.

One aspect of the invention is the detection and diagnosis of a disease or disorder associated with aberrant expression of a polypeptide of interest in an animal, preferably a mammal and most preferably a human. In one embodiment, diagnosis comprises: a) administering (for example, parenterally, subcutaneously, or intraperitoneally) to a subject an effective amount of a labeled molecule which specifically binds to the polypeptide of interest: b) waiting for a time interval

following the administering for permitting the labeled molecule to preferentially concentrate at sites in the subject where the polypeptide is expressed (and for unbound labeled molecule to be cleared to background level): c) determining background level; and d) detecting the labeled molecule in the subject, such that detection of labeled molecule above the background level indicates that the subject has a particular disease or disorder associated with aberrant expression of the polypeptide of interest. Background level can be determined by various methods including, comparing the amount of labeled molecule detected to a standard value previously determined for a particular system.

It will be understood in the art that the size of the subject and the imaging system used will determine the quantity of imaging moiety needed to produce diagnostic images. In the case of a radioisotope moiety, for a human subject, the quantity of radioactivity injected will normally range from about 5 to 20 millicuries of 99mTc. The labeled antibody or antibody fragment will then preferentially accumulate at the location of cells which contain the specific protein. In vivo tumor imaging is described in S.W. Burchiel et al., "Immunopharmacokinetics of Radiolabeled Antibodies and Their Fragments." (Chapter 13 in Tumor Imaging: The Radiochemical Detection of Cancer, S.W. Burchiel and B. A. Rhodes, eds., Masson Publishing Inc. (1982).

Depending on several variables, including the type of label used and the mode of administration, the time interval following the administration for permitting the labeled molecule to preferentially concentrate at sites in the subject and for unbound labeled molecule to be cleared to background level is 6 to 48 hours or 6 to 24 hours or 6 to 12 hours. In another embodiment the time interval following administration is 5 to 20 days or 5 to 10 days.

In an embodiment, monitoring of the disease or disorder is carried out by repeating the method for diagnosing the disease or disease, for example, one month after initial diagnosis, six months after initial diagnosis, one year after initial diagnosis, etc.

Presence of the labeled molecule can be detected in the patient using methods known in the art for in vivo scanning. These methods depend upon the type of label used. Skilled artisans will be able to determine the appropriate method for detecting a particular label. Methods and devices that may be used in the diagnostic methods of the invention include, but are not limited to, computed tomography (CT), whole body scan such as position emission tomography (PET), magnetic resonance imaging (MRI), and sonography.

In a specific embodiment, the molecule is labeled with a radioisotope and is detected in the patient using a radiation responsive surgical instrument (Thurston et al., U.S. Patent No. 5,441,050). In another embodiment, the molecule is labeled with a fluorescent compound and is detected in the patient using a fluorescence responsive scanning instrument. In another embodiment, the molecule is labeled with a positron emitting metal and is detected in the patent using positron emission-tomography. In yet another embodiment, the molecule is labeled with a paramagnetic label and is detected in a patient using magnetic resonance imaging (MRI).

Kits

The present invention provides kits that can be used in the above methods. In one embodiment, a kit comprises an antibody of the invention, preferably a purified antibody, in one or more containers. In a specific embodiment, the kits of the present invention contain a substantially isolated polypeptide comprising an epitope which is specifically immunoreactive with an antibody included in the kit. Preferably, the kits of the present invention further comprise a control antibody which does not react with the polypeptide of interest. In another specific embodiment, the kits of the present invention contain a means for detecting the binding of an antibody to a polypeptide of interest (e.g., the antibody may be conjugated to a detectable substrate such as a fluorescent compound, an enzymatic substrate, a radioactive compound or a luminescent compound, or a second antibody which recognizes the first antibody may be conjugated to a detectable substrate).

In another specific embodiment of the present invention. the kit is a diagnostic kit for use in screening serum containing antibodies specific against proliferative and/or cancerous polynucleotides and polypeptides. Such a kit may include a control antibody that does not react with the polypeptide of interest. Such a kit may include a substantially isolated polypeptide antigen comprising an epitope which is specifically immunoreactive with at least one anti-polypeptide antigen antibody. Further, such a kit includes means for detecting the binding of said antibody to the antigen (e.g., the antibody may be conjugated to a fluorescent compound such as fluorescein or rhodamine which can be detected by flow cytometry). In specific embodiments, the kit may include a recombinantly produced or chemically synthesized polypeptide antigen. The polypeptide antigen of the kit may also be attached to a solid support.

In a more specific embodiment the detecting means of the above-described kit includes a solid support to which said polypeptide antigen is attached. Such a kit may also include a non-attached reporter-labeled anti-human antibody. In this embodiment, binding of the antibody to the polypeptide antigen can be detected by binding of the said reporter-labeled antibody.

In an additional embodiment, the invention includes a diagnostic kit for use in screening serum containing antigens of the polypeptide of the invention. The diagnostic kit includes a substantially isolated antibody specifically immunoreactive with polypeptide or polynucleotide antigens. and means for detecting the binding of the polynucleotide or polypeptide antigen to the antibody. In one embodiment, the antibody is attached to a solid support. In a specific embodiment, the antibody may be a monoclonal antibody. The detecting means of the kit may include a second, labeled monoclonal antibody. Alternatively, or in addition, the detecting means may include a labeled, competing antigen.

In one diagnostic configuration, test serum is reacted with a solid phase reagent having a surface-bound antigen obtained by the methods of the present invention. After binding with specific antigen antibody to the reagent and removing unbound serum components by washing, the reagent is reacted with reporter-labeled anti-human antibody to bind reporter to the reagent in proportion to the amount of

bound anti-antigen antibody on the solid support. The reagent is again washed to remove unbound labeled antibody, and the amount of reporter associated with the reagent is determined. Typically, the reporter is an enzyme which is detected by incubating the solid phase in the presence of a suitable fluorometric, luminescent or colorimetric substrate (Sigma, St. Louis, MO).

The solid surface reagent in the above assay is prepared by known techniques for attaching protein material to solid support material, such as polymeric beads, dip sticks, 96-well plate or filter material. These attachment methods generally include non-specific adsorption of the protein to the support or covalent attachment of the protein, typically through a free amine group, to a chemically reactive group on the solid support, such as an activated carboxyl, hydroxyl, or aldehyde group. Alternatively, streptavidin coated plates can be used in conjunction with biotinylated antigen(s).

Thus, the invention provides an assay system or kit for carrying out this diagnostic method. The kit generally includes a support with surface- bound recombinant antigens, and a reporter-labeled anti-human antibody for detecting surface-bound anti-antigen antibody.

__Uses of the Polvnucleotides__

Each of the polynucleotides identified herein can be used in numerous ways as reagents. The following description should be considered exemplary and utilizes known techniques.

The prostate cancer antigen polynucleotides of the present invention are useful for chromosome identification. There exists an ongoing need to identify new chromosome markers, since few chromosome marking reagents, based on actual sequence data (repeat polymorphisms), are presently available. Each sequence is specifically targeted to and can hybridize with a particular location on an individual human chromosome, thus each polynucleotide of the present invention can routinely be used as a chromosome marker using techniques known in the art.

Briefly, sequences can be mapped to chromosomes by preparing PCR primers (preferably at least 15 bp (e.g., 15-25 bp) from the sequences shown in SEQ ID NO:X, or the complement thereto. Primers can optionally be selected using computer analysis so that primers do not span more than one predicted exon in the genomic DNA. These primers are then used for PCR screening of somatic cell hybrids containing individual human chromosomes. Only those hybrids containing the human gene corresponding to SEQ ID NO:X will yield an amplified fragment.

Similarly, somatic hybrids provide a rapid method of PCR mapping the polynucleotides to particular chromosomes. Three or more clones can be assigned per day using a single thermal cycler. Moreover, sublocalization of the polynucleotides can be achieved with panels of specific chromosome fragments. Other gene mapping strategies that can be used include in situ hybridization, prescreening with labeled flow-sorted chromosomes, preselection by hybridization to construct chromosome specific-cDNA libraries, and computer mapping techniques (See, e.g., Shuler, Trends Biotechnol 16:456-459 (1998) which is hereby incorporated by reference in its entirety).

Precise chromosomal location of the polynucleotides can also be achieved using fluorescence in situ hybridization (FISH) of a metaphase chromosomal spread. This technique uses polynucleotides as short as 500 or 600 bases; however, polynucleotides 2,000-4,000 bp are preferred. For a review of this technique, see Verma et al., "Human Chromosomes: a Manual of Basic Techniques," Pergamon Press, New York (1988).

For chromosome mapping, the polynucleotides can be used individually (to mark a single chromosome or a single site on that chromosome) or in panels (for marking multiple sites and/or multiple chromosomes).

Thus, the present invention also provides a method for chromosomal localization which involves (a) preparing PCR primers from the polynucleotide sequences in Table 3 and SEQ ID NO:X and (b) screening somatic cell hybrids containing individual chromosomes.

The polynucleotides of the present invention would likewise be useful for radiation hybrid mapping, HAPPY mapping, and long range restriction mapping. For a review of these techniques and others known in the art, see. e.g. Dear, "Genome Mapping: A Practical Approach," IRL Press at Oxford University Press, London (1997); Aydin, J. Mol. Med. 77:691-694 (1999); Hacia et al., Mol. Psychiatry 3:483-492 (1998); Herrick et al.. Chromosome Res. 7:409-423 (1999); Hamilton et al., Methods Cell Biol. 62:265-280 (2000); and/or Ott, J. Hered. 90:68-70 (1999) each of which is hereby incorporated by reference in its entirety.

Once a polynucleotide has been mapped to a precise chromosomal location, the physical position of the polynucleotide can be used in linkage analysis. Linkage analysis establishes coinheritance between a chromosomal location and presentation of a particular disease. (Disease mapping data are found, for example, in V. McKusick, Mendelian Inheritance in Man (available on line through Johns Hopkins University Welch Medical Library).) Assuming 1 megabase mapping resolution and one gene per 20 kb, a cDNA precisely localized to a chromosomal region associated with the disease could be one of 50-500 potential causative genes.

Thus, once coinheritance is established, differences in a polynucleotide of the invention and the corresponding gene between affected and unaffected individuals can be examined. First, visible structural alterations in the chromosomes, such as deletions or translocations, are examined in chromosome spreads or by PCR. If no structural alterations exist, the presence of point mutations are ascertained. Mutations observed in some or all affected individuals, but not in normal individuals, indicates that the mutation may cause the disease. However, complete sequencing of the polypeptide and the corresponding gene from several normal individuals is required to distinguish the mutation from a polymorphism. If a new polymorphism is identified, this polymorphic polypeptide can be used for further linkage analysis.

Furthermore, increased or decreased expression of the gene in affected individuals as compared to unaffected individuals can be assessed using the polynucleotides of the invention. Any of these alterations (altered expression,

chromosomal rearrangement. or mutation) can be used as a diagnostic or prognostic marker.

Thus, the invention provides a method of detecting increased or decreased expression levels of the prostate cancer polynucleotides in affected individuals as compared to unaffected individuals using polynucleotides of the present invention and techniques known in the art, including but not limited to the method described in Example 11. Any of these alterations (altered expression, chromosomal rearrangement, or mutation) can be used as a diagnostic or prognostic marker.

Thus, the invention also provides a diagnostic method useful during diagnosis of a prostate related disorder, including prostate cancer, involving measuring the expression level of prostate cancer polynucleotides in prostate tissue or other cells or body fluid from an individual and comparing the measured gene expression level with a standard prostate cancer polynucleotide expression level, whereby an increase or decrease in the gene expression level compared to the standard is indicative of a prostate related disorder.

In still another embodiment, the invention includes a kit for analyzing samples for the presence of proliferative and/or cancerous polynucleotides derived from a test subject. In a general embodiment, the kit includes at least one polynucleotide probe containing a nucleotide sequence that will specifically hybridize with a polynucleotide of the invention and a suitable container. In a specific embodiment, the kit includes two polynucleotide probes defining an internal region of the polynucleotide of the invention, where each probe has one strand containing a 31'mer-end internal to the region. In a further embodiment, the probes may be useful as primers for polymerase chain reaction amplification.

Where a diagnosis of a prostate related disorder, including, for example, diagnosis of a tumor, has already been made according to conventional methods, the present invention is useful as a prognostic indicator, whereby patients exhibiting enhanced or depressed prostate cancer polynucleotide expression will experience a worse clinical outcome relative to patients expressing the gene at a level nearer the standard level.

By "measuring the expression level of prostate cancer polynucleotides" is intended qualitatively or quantitatively measuring or estimating the level of the prostate cancer polypeptide or the level of the mRNA encoding the prostate cancer polypeptide in a first biological sample either directly (e.g., by determining or estimating absolute protein level or mRNA level) or relatively (e.g., by comparing to the prostate cancer polypeptide level or mRNA level in a second biological sample). Preferably, the prostate cancer polypeptide level or mRNA level in the first biological sample is measured or estimated and compared to a standard prostate cancer polypeptide level or mRNA level, the standard being taken from a second biological sample obtained from an individual not having the prostate related disorder or being determined by averaging levels from a population of individuals not having a prostate related disorder. As will be appreciated in the art, once a standard prostate cancer polypeptide level or mRNA level is known, it can be used repeatedly as a standard for comparison.

By "biological sample" is intended any biological sample obtained from an individual, body fluid, cell line, tissue culture, or other source which contains prostate cancer polypeptide or the corresponding mRNA. As indicated, biological samples include body fluids (such as semen, lymph, sera, plasma, urine, synovial fluid and spinal fluid) which contain the prostate cancer polypeptide, prostate tissue, and other tissue sources found to express the prostate cancer polypeptide. Methods for obtaining tissue biopsies and body fluids from mammals are well known in the art. Where the biological sample is to include mRNA, a tissue biopsy is the preferred source.

The method(s) provided above may preferrably be applied in a diagnostic method and/or kits in which polynucleotides and/or polypeptides of the invention are attached to a solid support. In one exemplary method, the support may be a "gene chip" or a "biological chip" as described in US Patents 5,837,832, 5,874,219, and 5,856,174. Further, such a gene chip with prostate cancer polynucleotides attached may be used to identify polymorphisms between the prostate cancer polynucleotide sequences, with polynucleotides isolated from a test subject. The knowledge of such

polymorphisms (i.e. their location. as well as, their existence) would be beneficial in identifying disease loci for many disorders. such as for example, in neural disorders, immune system disorders, muscular disorders, reproductive disorders, gastrointestinal disorders, pulmonary disorders. cardiovascular disorders, renal disorders, proliferative disorders. and/or cancerous diseases and conditions, though most preferably in prostate related proliferative. and/or cancerous diseases and conditions. Such a method is described in US Patents 5,858,659 and 5,856,104. The US Patents referenced supra are hereby incorporated by reference in their entirety herein.

The present invention encompasses prostate cancer polynucleotides that are chemically synthesized, or reproduced as peptide nucleic acids (PNA), or according to other methods known in the art. The use of PNAs would serve as the preferred form if the polynucleotides of the invention are incorporated onto a solid support, or gene chip. For the purposes of the present invention, a peptide nucleic acid (PNA) is a polyamide type of DNA analog and the monomeric units for adenine, guanine, thymine and cytosine are available commercially (Perceptive Biosystems). Certain components of DNA, such as phosphorus, phosphorus oxides, or deoxyribose derivatives, are not present in PNAs. As disclosed by P. E. Nielsen, M. Egholm, R. H. Berg and O. Buchardt, Science 254, 1497 (1991); and M. Egholm, O. Buchardt, L.Christensen, C. Behrens, S. M. Freier, D. A. Driver, R. H. Berg, S. K. Kim, B. Norden, and P. E. Nielsen. Nature 365, 666 (1993), PNAs bind specifically and tightly to complementary DNA strands and are not degraded by nucleases. In fact, PNA binds more strongly to DNA than DNA itself does. This is probably because there is no electrostatic repulsion between the two strands, and also the polyamide backbone is more flexible. Because of this, PNA/DNA duplexes bind under a wider range of stringency conditions than DNA/DNA duplexes, making it easier to perform multiplex hybridization. Smaller probes can be used than with DNA due to the strong binding. In addition, it is more likely that single base mismatches can be determined with PNA/DNA hybridization because a single mismatch in a PNA/DNA 15-mer lowers the melting point (T.sub.m) by 8°-20° C, vs. 4°-16° C for the DNA/DNA 15-mer duplex. Also. the absence of charge groups in PNA means that hybridization can

be done at low ionic strengths and reduce possible interference by salt during the analysis.

The present invention have uses which include, but are not limited to, detecting cancer in mammals. In particular the invention is useful during diagnosis of pathological cell proliferative neoplasias which include, but are not limited to: acute myelogenous leukemias including acute monocytic leukemia, acute myeloblastic leukemia. acute promyelocytic leukemia, acute myelomonocytic leukemia, acute erythroleukemia, acute megakaryocytic leukemia, and acute undifferentiated leukemia, etc.; and chronic myelogenous leukemias including chronic myelomonocytic leukemia, chronic granulocytic leukemia, etc. Preferred mammals include monkeys, apes. cats, dogs, cows, pigs, horses. rabbits and humans. Particularly preferred are humans.

Pathological cell proliferative disorders are often associated with inappropriate activation of proto-oncogenes. (Gelmann, E. P. et al., "The Etiology of Acute Leukemia: Molecular Genetics and Viral Oncology," in Neoplastic Diseases of the Blood. Vol 1., Wiernik, P. H. et al. eds., 161-182 (1985)). Neoplasias are now believed to result from the qualitative alteration of a normal cellular gene product, or from the quantitative modification of gene expression by insertion into the chromosome of a viral sequence, by chromosomal translocation of a gene to a more actively transcribed region, or by some other mechanism. (Gelmann et al., supra) It is likely that mutated or altered expression of specific genes is involved in the pathogenesis of some leukemias, among other tissues and cell types. (Gelmann et al., supra) Indeed, the human counterparts of the oncogenes involved in some animal neoplasias have been amplified or translocated in some cases of human leukemia and carcinoma. (Gelmann et al., supra)

For example, c-myc expression is highly amplified in the non-lymphocytic leukemia cell line HL-60. When HL-60 cells are chemically induced to stop proliferation, the level of c-myc is found to be downregulated. (International Publication Number WO 91/15580). However. it has been shown that exposure of HL-60 cells to a DNA construct that is complementary to the 5' end of c-myc or c-

myb blocks translation of the corresponding mRNAs which downregulates expression of the c-myc or c-myb proteins and causes arrest of cell proliferation and differentiation of the treated cells. (International Publication Number WO 91/15580; Wickstrom et al., Proc. Natl. Acad. Sci. 85:1028 (1988); Anfossi et al.. Proc. Natl. Acad. Sci. 86:3379 (1989)). However, the skilled artisan would appreciate the present invention's usefulness is not limited to treatment of proliferative disorders of hematopoietic cells and tissues, in light of the numerous cells and cell types of varying origins which are known to exhibit proliferative phenotypes.

In addition to the foregoing, a prostate cancer antigen polynucleotide can be used to control gene expression through triple helix formation or through antisense DNA or RNA. Antisense techniques are discussed, for example, in Okano, J. Neurochem. 56: 560 (1991); "Oligodeoxynucleotides as Antisense Inhibitors of Gene Expression, CRC Press, Boca Raton, FL (1988). Triple helix formation is discussed in, for instance Lee et al., Nucleic Acids Research 6: 3073 (1979); Cooney et al., Science 241: 456 (1988); and Dervan et al., Science 251: 1360 (1991). Both methods rely on binding of the polynucleotide to a complementary DNA or RNA. For these techniques, preferred polynucleotides are usually oligonucleotides 20 to 40 bases in length and complementary to either the region of the gene involved in transcription (triple helix - see Lee et al., Nucl. Acids Res. 6:3073 (1979); Cooney et al., Science 241:456 (1988); and Dervan et al., Science 251:1360 (1991)) or to the mRNA itself (antisense - Okano, J. Neurochem. 56:560 (1991); Oligodeoxy-nucleotides as Antisense Inhibitors of Gene Expression, CRC Press, Boca Raton, FL (1988).) Triple helix formation optimally results in a shut-off of RNA transcription from DNA, while antisense RNA hybridization blocks translation of an mRNA molecule into polypeptide. The oligonucleotide described above can also be delivered to cells such that the antisense RNA or DNA may be expressed in vivo to inhibit production of polypeptide of the present invention antigens. Both techniques are effective in model systems, and the information disclosed herein can be used to design antisense or triple helix polynucleotides in an effort to treat disease, and in particular, for the treatment of proliferative diseases and/or conditions.

Polynucleotides of the present invention are also useful in gene therapy. One goal of gene therapy is to insert a normal gene into an organism having a defective gene, in an effort to correct the genetic defect. The polynucleotides disclosed in the present invention offer a means of targeting such genetic defects in a highly accurate manner. Another goal is to insert a new gene that was not present in the host genome, thereby producing a new trait in the host cell.

The polynucleotides are also useful for identifying individuals from minute biological samples. The United States military, for example, is considering the use of restriction fragment length polymorphism (RFLP) for identification of its personnel. In this technique, an individual's genomic DNA is digested with one or more restriction enzymes, and probed on a Southern blot to yield unique bands for identifying personnel. This method does not suffer from the current limitations of "Dog Tags" which can be lost, switched, or stolen, making positive identification difficult. The polynucleotides of the present invention can be used as additional DNA markers for RFLP.

The polynucleotides of the present invention can also be used as an alternative to RFLP, by determining the actual base-by-base DNA sequence of selected portions of an individual's genome. These sequences can be used to prepare PCR primers for amplifying and isolating such selected DNA, which can then be sequenced. Using this technique, individuals can be identified because each individual will have a unique set of DNA sequences. Once an unique ID database is established for an individual, positive identification of that individual, living or dead, can be made from extremely small tissue samples.

Forensic biology also benefits from using DNA-based identification techniques as disclosed herein. DNA sequences taken from very small biological samples such as tissues, e.g., hair or skin, or body fluids, e.g., blood, saliva, semen, synovial fluid, amniotic fluid, breast milk, lymph, pulmonary sputum or surfactant, urine, fecal matter, etc., can be amplified using PCR. In one prior art technique, gene sequences amplified from polymorphic loci, such as DQa class II HLA gene, are used in forensic biology to identify individuals. (Erlich, H., PCR Technology, Freeman

and Co. (1992).) Once these specific polymorphic loci are amplified, they are digested with one or more restriction enzymes, yielding an identifying set of bands on a Southern blot probed with DNA corresponding to the DQa class II HLA gene. Similarly, polynucleotides of the present invention can be used as polymorphic markers for forensic purposes.

There is also a need for reagents capable of identifying the source of a particular tissue. Such need arises, for example, in forensics when presented with tissue of unknown origin. Appropriate reagents can comprise, for example, DNA probes or primers specific to prostate or prostate cancer polynucleotides prepared from the sequences of the present invention. Panels of such reagents can identify tissue by species and/or by organ type. In a similar fashion, these reagents can be used to screen tissue cultures for contamination.

The polynucleotides of the present invention are also useful as hybridization probes for differential identification of the tissue(s) or cell type(s) present in a biological sample. Similarly, polypeptides and antibodies directed to polypeptides of the present invention are useful to provide immunological probes for differential identification of the tissue(s) (e.g., immunohistochemistry assays) or cell type(s) (e.g., immunocytochemistry assays). In addition, for a number of disorders of the above tissues or cells, significantly higher or lower levels of gene expression of the polynucleotides/polypeptides of the present invention may be detected in certain tissues (e.g., tissues expressing polypeptides and/or polynucleotides of the present invention, prostate and prostate cancer tissues and/or cancerous and/or wounded tissues) or bodily fluids (e.g., serum, plasma, urine, synovial fluid or spinal fluid) taken from an individual having such a disorder, relative to a "standard" gene expression level, i.e., the expression level in healthy tissue from an individual not having the disorder.

Thus, the invention provides a diagnostic method of a disorder, which involves: (a) assaying gene expression level in cells or body fluid of an individual; (b) comparing the gene expression level with a standard gene expression level, whereby

an increase or decrease in the assayed gene expression level compared to the standard expression level is indicative of a disorder.

In the very least, the polynucleotides of the present invention can be used as molecular weight markers on Southern gels. as diagnostic probes for the presence of a specific mRNA in a particular cell type, as a probe to "subtract-out" known sequences in the process of discovering novel polynucleotides, for selecting and making oligomers for attachment to a "gene chip" or other support, to raise anti-DNA antibodies using DNA immunization techniques, and as an antigen to elicit an immune response.

Uses of the Polypeptides

Each of the polypeptides identified herein can be used in numerous ways. The following description should be considered exemplary and utilizes known techniques.

Polypeptides and antibodies directed to polypeptides of the present invention are useful to provide immunological probes for differential identification of the tissue(s) (e.g., immunohistochemistry assays such as, for example, ABC immunoperoxidase (Hsu et al., J. Histochem. Cytochem. 29:577-580 (1981)) or cell type(s) (e.g., immunocytochemistry assays).

Antibodies can be used to assay levels of polypeptides encoded by polynucleotides of the invention in a biological sample using classical immunohistological methods known to those of skill in the art (e.g., see Jalkanen, et al., J. Cell. Biol. 101:976-985 (1985); Jalkanen. et al., J. Cell. Biol. 105:3087-3096 (1987)). Other antibody-based methods useful for detecting protein gene expression include immunoassays, such as the enzyme linked immunosorbent assay (ELISA) and the radioimmunoassay (RIA). Suitable antibody assay labels are known in the art and include enzyme labels, such as, glucose oxidase; radioisotopes, such as iodine (^{131}I, ^{125}I, ^{123}I, ^{121}I), carbon (^{14}C), sulfur (^{35}S), tritium (^{3}H), indium (^{115m}In, ^{113m}In, ^{112}In, ^{111}In), and technetium (^{99}Tc, ^{99m}Tc), thallium (^{201}Ti), gallium (^{68}Ga, ^{67}Ga), palladium (^{103}Pd), molybdenum (^{99}Mo), xenon (^{133}Xe), fluorine (^{18}F), ^{153}Sm, ^{177}Lu, ^{159}Gd, ^{149}Pm, ^{140}La, ^{175}Yb, ^{166}Ho, ^{90}Y, ^{47}Sc, ^{186}Re, ^{188}Re, ^{142}Pr, ^{105}Rh, ^{97}Ru;

luminescent labels, such as luminol: and fluorescent labels, such as fluorescein and rhodamine, and biotin.

In addition to assaying levels of polypeptide of the present invention in a biological sample, proteins can also be detected in vivo by imaging. Antibody labels or markers for in vivo imaging of protein include those detectable by X-radiography, NMR or ESR. For X-radiography, suitable labels include radioisotopes such as barium or cesium, which emit detectable radiation but are not overtly harmful to the subject. Suitable markers for NMR and ESR include those with a detectable characteristic spin, such as deuterium, which may be incorporated into the antibody by labeling of nutrients for the relevant hybridoma.

A protein-specific antibody or antibody fragment which has been labeled with an appropriate detectable imaging moiety, such as a radioisotope (for example, ^{131}I, ^{112}In, ^{99m}Tc, (^{131}I, ^{125}I, ^{123}I, ^{121}I), carbon (^{14}C), sulfur (^{35}S), tritium (^{3}H), indium (^{115m}In, ^{113m}In, ^{112}In, ^{111}In), and technetium (^{99}Tc, ^{99m}Tc), thallium (^{201}Ti), gallium (^{68}Ga, ^{67}Ga), palladium (^{103}Pd), molybdenum (^{99}Mo), xenon (^{133}Xe), fluorine (^{18}F, ^{153}Sm, ^{177}Lu, ^{159}Gd, ^{149}Pm, ^{140}La, ^{175}Yb, ^{166}Ho, ^{90}Y, ^{47}Sc, ^{186}Re, ^{188}Re, ^{142}Pr, ^{105}Rh, ^{97}Ru), a radio-opaque substance, or a material detectable by nuclear magnetic resonance, is introduced (for example, parenterally, subcutaneously or intraperitoneally) into the mammal to be examined for immune system disorder. It will be understood in the art that the size of the subject and the imaging system used will determine the quantity of imaging moiety needed to produce diagnostic images. In the case of a radioisotope moiety, for a human subject, the quantity of radioactivity injected will normally range from about 5 to 20 millicuries of ^{99m}Tc. The labeled antibody or antibody fragment will then preferentially accumulate at the location of cells which express the polypeptide encoded by a polynucleotide of the invention. *In vivo* tumor imaging is described in S.W. Burchiel et al., "Immunopharmacokinetics of Radiolabeled Antibodies and Their Fragments" (Chapter 13 in *Tumor Imaging: The Radiochemical Detection of Cancer*, S.W. Burchiel and B. A. Rhodes, eds., Masson Publishing Inc. (1982)).

In one embodiment, the invention provides a method for the specific delivery of compositions of the invention to cells by administering polypeptides of the invention (e.g., polypeptides encoded by polynucleotides of the invention and/or antibodies) that are associated with heterologous polypeptides or nucleic acids. In one example, the invention provides a method for delivering a therapeutic protein into the targeted cell. In another example, the invention provides a method for delivering a single stranded nucleic acid (e.g., antisense or ribozymes) or double stranded nucleic acid (e.g., DNA that can integrate into the cell's genome or replicate episomally and that can be transcribed) into the targeted cell.

In another embodiment, the invention provides a method for the specific destruction of cells (e.g., the destruction of tumor cells) by administering polypeptides of the invention in association with toxins or cytotoxic prodrugs.

By "toxin" is meant one or more compounds that bind and activate endogenous cytotoxic effector systems, radioisotopes, holotoxins, modified toxins, catalytic subunits of toxins, or any molecules or enzymes not normally present in or on the surface of a cell that under defined conditions cause the cell's death. Toxins that may be used according to the methods of the invention include, but are not limited to, radioisotopes known in the art, compounds such as, for example, antibodies (or complement fixing containing portions thereof) that bind an inherent or induced endogenous cytotoxic effector system, thymidine kinase, endonuclease, RNAse, alpha toxin, ricin, abrin, *Pseudomonas* exotoxin A, diphtheria toxin, saporin, momordin, gelonin, pokeweed antiviral protein, alpha-sarcin and cholera toxin. "Toxin" also includes a cytostatic or cytocidal agent, a therapeutic agent or a radioactive metal ion, e.g., alpha-emitters such as, for example, ^{213}Bi, or other radioisotopes such as, for example, ^{103}Pd, ^{133}Xe, ^{131}I, ^{68}Ge, ^{57}Co, ^{65}Zn, ^{85}Sr, ^{32}P, ^{35}S, ^{90}Y, ^{153}Sm, ^{153}Gd, ^{169}Yb, ^{51}Cr, ^{54}Mn, ^{75}Se, ^{113}Sn, ^{90}Yttrium, ^{117}Tin, ^{186}Rhenium, ^{166}Holmium, and ^{188}Rhenium; luminescent labels, such as luminol; and fluorescent labels, such as fluorescein and rhodamine, and biotin.

Techniques known in the art may be applied to label polypeptides of the invention (including antibodies). Such techniques include, but are not limited to, the

use of bifunctional conjugating agents (see e.g., U.S. Patent Nos. 5.756,065; 5.714,631; 5,696,239; 5.652,361; 5,505,931; 5,489,425; 5,435,990; 5,428,139; 5,342,604; 5,274,119; 4,994,560; and 5.808,003; the contents of each of which are hereby incorporated by reference in its entirety).

Thus, the invention provides a diagnostic method of a disorder, which involves (a) assaying the expression level of a prostate cancer polypeptide of the present invention in cells or body fluid of an individual, or more preferrably, assaying the expression level of a prostate cancer polypeptide of the present invention in prostate cells or semen of an individual; and (b) comparing the assayed polypeptide expression level with a standard polypeptide expression level, whereby an increase or decrease in the assayed polypeptide expression level compared to the standard expression level is indicative of a disorder. With respect to cancer, the presence of a relatively high amount of transcript in biopsied tissue from an individual may indicate a predisposition for the development of the disease, or may provide a means for detecting the disease prior to the appearance of actual clinical symptoms. A more definitive diagnosis of this type may allow health professionals to employ preventative measures or aggressive treatment earlier thereby preventing the development or further progression of the cancer.

Moreover, prostate cancer antigen polypeptides of the present invention can be used to treat or prevent diseases or conditions such as, for example, neural disorders, immune system disorders, muscular disorders, reproductive disorders, gastrointestinal disorders, pulmonary disorders, cardiovascular disorders, renal disorders, proliferative disorders, and/or cancerous diseases and conditions, preferably proliferative disorders of the prostate, and/or cancerous disease and conditions. For example, patients can be administered a polypeptide of the present invention in an effort to replace absent or decreased levels of the polypeptide (e.g., insulin), to supplement absent or decreased levels of a different polypeptide (e.g., hemoglobin S for hemoglobin B, SOD, catalase, DNA repair proteins), to inhibit the activity of a polypeptide (e.g., an oncogene or tumor supressor), to activate the activity of a polypeptide (e.g., by binding to a receptor), to reduce the activity of a

membrane bound receptor by competing with it for free ligand (e.g., soluble TNF receptors used in reducing inflammation), or to bring about a desired response (e.g., blood vessel growth inhibition, enhancement of the immune response to proliferative cells or tissues).

Similarly, antibodies directed to a polypeptide of the present invention can also be used to treat disease (as described supra, and elsewhere herein). For example, administration of an antibody directed to a polypeptide of the present invention can bind, and/or neutralize the polypeptide, and/or reduce overproduction of the polypeptide. Similarly, administration of an antibody can activate the polypeptide, such as by binding to a polypeptide bound to a membrane (receptor).

At the very least, the polypeptides of the present invention can be used as molecular weight markers on SDS-PAGE gels or on molecular sieve gel filtration columns using methods well known to those of skill in the art. Polypeptides can also be used to raise antibodies, which in turn are used to measure protein expression from a recombinant cell, as a way of assessing transformation of the host cell. Moreover, the polypeptides of the present invention can be used to test the following biological activities.

Gene Therapy Methods

Another aspect of the present invention is to gene therapy methods for treating or preventing disorders, diseases and conditions. The gene therapy methods relate to the introduction of nucleic acid (DNA, RNA and antisense DNA or RNA) sequences into an animal to achieve expression of the polypeptide of the present invention. This method requires a polynucleotide which codes for a polypeptide of the present invention operatively linked to a promoter and any other genetic elements necessary for the expression of the polypeptide by the target tissue. Such gene therapy and delivery techniques are known in the art, see, for example, WO90/11092, which is herein incorporated by reference.

Thus, for example, cells from a patient may be engineered with a polynucleotide (DNA or RNA) comprising a promoter operably linked to a

polynucleotide of the present invention ex vivo, with the engineered cells then being provided to a patient to be treated with the polypeptide of the present invention. Such methods are well-known in the art. For example, see Belldegrun, A., et al., J. Natl. Cancer Inst. 85: 207-216 (1993); Ferrantini, M. et al., Cancer Research 53: 1107-1112 (1993); Ferrantini, M. et al., J. Immunology 153: 4604-4615 (1994); Kaido, T., et al., Int. J. Cancer 60: 221-229 (1995); Ogura, H., et al., Cancer Research 50: 5102-5106 (1990); Santodonato, L., et al., Human Gene Therapy 7:1-10 (1996); Santodonato, L., et al., Gene Therapy 4:1246-1255 (1997); and Zhang, J.-F. et al., Cancer Gene Therapy 3: 31-38 (1996)), which are herein incorporated by reference. In one embodiment, the cells which are engineered are arterial cells. The arterial cells may be reintroduced into the patient through direct injection to the artery, the tissues surrounding the artery, or through catheter injection.

As discussed in more detail below, the polynucleotide constructs can be delivered by any method that delivers injectable materials to the cells of an animal, such as, injection into the interstitial space of tissues (heart, muscle, skin, lung, liver, and the like). The polynucleotide constructs may be delivered in a pharmaceutically acceptable liquid or aqueous carrier.

In one embodiment, the polynucleotide of the present invention is delivered as a naked polynucleotide. The term "naked" polynucleotide, DNA or RNA refers to sequences that are free from any delivery vehicle that acts to assist, promote or facilitate entry into the cell, including viral sequences, viral particles, liposome formulations, lipofectin or precipitating agents and the like. However, the polynucleotide of the present invention can also be delivered in liposome formulations and lipofectin formulations and the like can be prepared by methods well known to those skilled in the art. Such methods are described, for example, in U.S. Patent Nos. 5,593,972, 5,589,466, and 5,580,859, which are herein incorporated by reference.

The polynucleotide vector constructs used in the gene therapy method are preferably constructs that will not integrate into the host genome nor will they contain sequences that allow for replication. Appropriate vectors include pWLNEO.

pSV2CAT, pOG44, pXT1 and pSG available from Stratagene; pSVK3, pBPV, pMSG and pSVL available from Pharmacia; and pEF1/V5, pcDNA3.1, and pRc/CMV2 available from Invitrogen. Other suitable vectors will be readily apparent to the skilled artisan.

Any strong promoter known to those skilled in the art can be used for driving the expression of the polynucleotide sequence. Suitable promoters include adenoviral promoters, such as the adenoviral major late promoter; or heterologous promoters, such as the cytomegalovirus (CMV) promoter; the respiratory syncytial virus (RSV) promoter; inducible promoters, such as the MMT promoter, the metallothionein promoter; heat shock promoters; the albumin promoter; the ApoAI promoter; human globin promoters; viral thymidine kinase promoters, such as the Herpes Simplex thymidine kinase promoter; retroviral LTRs; the b-actin promoter; and human growth hormone promoters. The promoter also may be the native promoter for the polynucleotide of the present invention.

Unlike other gene therapy techniques, one major advantage of introducing naked nucleic acid sequences into target cells is the transitory nature of the polynucleotide synthesis in the cells. Studies have shown that non-replicating DNA sequences can be introduced into cells to provide production of the desired polypeptide for periods of up to six months.

The polynucleotide construct can be delivered to the interstitial space of tissues within the an animal, including of muscle, skin, brain, lung, liver, spleen, bone marrow, thymus, heart, lymph, blood, bone, cartilage, pancreas, kidney, gall bladder, stomach, intestine, testis, ovary, uterus, rectum, nervous system, eye, gland, and connective tissue. Interstitial space of the tissues comprises the intercellular, fluid, mucopolysaccharide matrix among the reticular fibers of organ tissues, elastic fibers in the walls of vessels or chambers, collagen fibers of fibrous tissues, or that same matrix within connective tissue ensheathing muscle cells or in the lacunae of bone. It is similarly the space occupied by the plasma of the circulation and the lymph fluid of the lymphatic channels. Delivery to the interstitial space of muscle tissue is preferred for the reasons discussed below. They may be conveniently delivered by injection into the

tissues comprising these cells. They are preferably delivered to and expressed in persistent. non-dividing cells which are differentiated. although delivery and expression may be achieved in non-differentiated or less completely differentiated cells. such as. for example. stem cells of blood or skin fibroblasts. In vivo muscle cells are particularly competent in their ability to take up and express polynucleotides.

For the naked nucleic acid sequence injection, an effective dosage amount of DNA or RNA will be in the range of from about 0.05 mg/kg body weight to about 50 mg/kg body weight. Preferably the dosage will be from about 0.005 mg/kg to about 20 mg/kg and more preferably from about 0.05 mg/kg to about 5 mg/kg. Of course, as the artisan of ordinary skill will appreciate, this dosage will vary according to the tissue site of injection. The appropriate and effective dosage of nucleic acid sequence can readily be determined by those of ordinary skill in the art and may depend on the condition being treated and the route of administration.

The preferred route of administration is by the parenteral route of injection into the interstitial space of tissues. However, other parenteral routes may also be used, such as, inhalation of an aerosol formulation particularly for delivery to lungs or bronchial tissues, throat or mucous membranes of the nose. In addition, naked DNA constructs can be delivered to arteries during angioplasty by the catheter used in the procedure.

The naked polynucleotides are delivered by any method known in the art, including, but not limited to, direct needle injection at the delivery site, intravenous injection, topical administration, catheter infusion, and so-called "gene guns". These delivery methods are known in the art.

The constructs may also be delivered with delivery vehicles such as viral sequences, viral particles, liposome formulations, lipofectin, precipitating agents, etc. Such methods of delivery are known in the art.

In certain embodiments, the polynucleotide constructs are complexed in a liposome preparation. Liposomal preparations for use in the instant invention include cationic (positively charged), anionic (negatively charged) and neutral preparations. However. cationic liposomes are particularly preferred because a tight charge

complex can be formed between the cationic liposome and the polyanionic nucleic acid. Cationic liposomes have been shown to mediate intracellular delivery of plasmid DNA (Felgner et al., Proc. Natl. Acad. Sci. USA (1987) 84:7413-7416, which is herein incorporated by reference); mRNA (Malone et al., Proc. Natl. Acad. Sci. USA (1989) 86:6077-6081, which is herein incorporated by reference); and purified transcription factors (Debs et al., J. Biol. Chem. (1990) 265:10189-10192, which is herein incorporated by reference), in functional form.

Cationic liposomes are readily available. For example, N[1-2,3-dioleyloxy)propyl]-N,N,N-triethylammonium (DOTMA) liposomes are particularly useful and are available under the trademark Lipofectin, from GIBCO BRL, Grand Island, N.Y. (See, also, Felgner et al., Proc. Natl Acad. Sci. USA (1987) 84:7413-7416, which is herein incorporated by reference). Other commercially available liposomes include transfectace (DDAB/DOPE) and DOTAP/DOPE (Boehringer).

Other cationic liposomes can be prepared from readily available materials using techniques well known in the art. See, e.g. PCT Publication No. WO 90/11092 (which is herein incorporated by reference) for a description of the synthesis of DOTAP (1,2-bis(oleoyloxy)-3-(trimethylammonio)propane) liposomes. Preparation of DOTMA liposomes is explained in the literature, see, e.g., P. Felgner et al., Proc. Natl. Acad. Sci. USA 84:7413-7417, which is herein incorporated by reference. Similar methods can be used to prepare liposomes from other cationic lipid materials.

Similarly, anionic and neutral liposomes are readily available, such as from Avanti Polar Lipids (Birmingham, Ala.), or can be easily prepared using readily available materials. Such materials include phosphatidyl, choline, cholesterol, phosphatidyl ethanolamine, dioleoylphosphatidyl choline (DOPC), dioleoylphosphatidyl glycerol (DOPG), dioleoylphoshatidyl ethanolamine (DOPE), among others. These materials can also be mixed with the DOTMA and DOTAP starting materials in appropriate ratios. Methods for making liposomes using these materials are well known in the art.

For example, commercially dioleoylphosphatidyl choline (DOPC), dioleoylphosphatidyl glycerol (DOPG), and dioleoylphosphatidyl ethanolamine (DOPE) can be used in various combinations to make conventional liposomes, with or without the addition of cholesterol. Thus, for example, DOPG/DOPC vesicles can be prepared by drying 50 mg each of DOPG and DOPC under a stream of nitrogen gas into a sonication vial. The sample is placed under a vacuum pump overnight and is hydrated the following day with deionized water. The sample is then sonicated for 2 hours in a capped vial, using a Heat Systems model 350 sonicator equipped with an inverted cup (bath type) probe at the maximum setting while the bath is circulated at 15EC. Alternatively, negatively charged vesicles can be prepared without sonication to produce multilamellar vesicles or by extrusion through nucleopore membranes to produce unilamellar vesicles of discrete size. Other methods are known and available to those of skill in the art.

The liposomes can comprise multilamellar vesicles (MLVs), small unilamellar vesicles (SUVs), or large unilamellar vesicles (LUVs), with SUVs being preferred. The various liposome-nucleic acid complexes are prepared using methods well known in the art. See, e.g., Straubinger et al., Methods of Immunology (1983), 101:512-527, which is herein incorporated by reference. For example, MLVs containing nucleic acid can be prepared by depositing a thin film of phospholipid on the walls of a glass tube and subsequently hydrating with a solution of the material to be encapsulated. SUVs are prepared by extended sonication of MLVs to produce a homogeneous population of unilamellar liposomes. The material to be entrapped is added to a suspension of preformed MLVs and then sonicated. When using liposomes containing cationic lipids, the dried lipid film is resuspended in an appropriate solution such as sterile water or an isotonic buffer solution such as 10 mM Tris/NaCl, sonicated, and then the preformed liposomes are mixed directly with the DNA. The liposome and DNA form a very stable complex due to binding of the positively charged liposomes to the cationic DNA. SUVs find use with small nucleic acid fragments. LUVs are prepared by a number of methods, well known in the art. Commonly used methods include Ca^{2+}-EDTA chelation (Papahadjopoulos et al., Biochim. Biophys. Acta

(1975) 394:483; Wilson et al., Cell (1979) 17:77); ether injection (Deamer, D. and Bangham, A.. Biochim. Biophys. Acta (1976) 443:629; Ostro et al., Biochem. Biophys. Res. Commun. (1977) 76:836; Fraley et al.. Proc. Natl. Acad. Sci. USA (1979) 76:3348); detergent dialysis (Enoch, H. and Strittmatter, P.. Proc. Natl. Acad. Sci. USA (1979) 76:145); and reverse-phase evaporation (REV) (Fraley et al., J. Biol. Chem. (1980) 255:10431; Szoka, F. and Papahadjopoulos, D., Proc. Natl. Acad. Sci. USA (1978) 75:145; Schaefer-Ridder et al., Science (1982) 215:166), which are herein incorporated by reference.

Generally, the ratio of DNA to liposomes will be from about 10:1 to about 1:10. Preferably, the ration will be from about 5:1 to about 1:5. More preferably, the ration will be about 3:1 to about 1:3. Still more preferably, the ratio will be about 1:1.

U.S. Patent No. 5,676,954 (which is herein incorporated by reference) reports on the injection of genetic material, complexed with cationic liposomes carriers, into mice. U.S. Patent Nos. 4,897,355, 4,946,787, 5,049,386, 5,459,127, 5,589,466, 5,693,622, 5,580,859, 5,703,055, and international publication no. WO 94/9469 (which are herein incorporated by reference) provide cationic lipids for use in transfecting DNA into cells and mammals. U.S. Patent Nos. 5,589,466, 5,693,622, 5,580,859, 5,703,055, and international publication no. WO 94/9469 (which are herein incorporated by reference) provide methods for delivering DNA-cationic lipid complexes to mammals.

In certain embodiments, cells are engineered, ex vivo or in vivo, using a retroviral particle containing RNA which comprises a sequence encoding a polypeptide of the present invention. Retroviruses from which the retroviral plasmid vectors may be derived include, but are not limited to, Moloney Murine Leukemia Virus, spleen necrosis virus, Rous sarcoma Virus, Harvey Sarcoma Virus, avian leukosis virus, gibbon ape leukemia virus, human immunodeficiency virus, Myeloproliferative Sarcoma Virus, and mammary tumor virus.

The retroviral plasmid vector is employed to transduce packaging cell lines to form producer cell lines. Examples of packaging cells which may be transfected include, but are not limited to, the PE501, PA317, R-2, R-AM, PA12, T19-14X, VT-

19-17-H2. RCRE, RCRIP. GP+E-86. GP+envAm12. and DAN cell lines as described in Miller, Human Gene Therapy 1:5-14 (1990), which is incorporated herein by reference in its entirety. The vector may transduce the packaging cells through any means known in the art. Such means include, but are not limited to, electroporation, the use of liposomes, and $CaPO_4$ precipitation. In one alternative, the retroviral plasmid vector may be encapsulated into a liposome, or coupled to a lipid, and then administered to a host.

The producer cell line generates infectious retroviral vector particles which include polynucleotide encoding a polypeptide of the present invention. Such retroviral vector particles then may be employed, to transduce eukaryotic cells, either in vitro or in vivo. The transduced eukaryotic cells will express a polypeptide of the present invention.

In certain other embodiments, cells are engineered, ex vivo or in vivo, with polynucleotide contained in an adenovirus vector. Adenovirus can be manipulated such that it encodes and expresses a polypeptide of the present invention, and at the same time is inactivated in terms of its ability to replicate in a normal lytic viral life cycle. Adenovirus expression is achieved without integration of the viral DNA into the host cell chromosome, thereby alleviating concerns about insertional mutagenesis. Furthermore, adenoviruses have been used as live enteric vaccines for many years with an excellent safety profile (Schwartz, A. R. et al. (1974) Am. Rev. Respir. Dis.109:233-238). Finally, adenovirus mediated gene transfer has been demonstrated in a number of instances including transfer of alpha-1-antitrypsin and CFTR to the lungs of cotton rats (Rosenfeld, M. A. et al. (1991) Science 252:431-434; Rosenfeld et al., (1992) Cell 68:143-155). Furthermore, extensive studies to attempt to establish adenovirus as a causative agent in human cancer were uniformly negative (Green, M. et al. (1979) Proc. Natl. Acad. Sci. USA 76:6606).

Suitable adenoviral vectors useful in the present invention are described, for example, in Kozarsky and Wilson, Curr. Opin. Genet. Devel. 3:499-503 (1993); Rosenfeld et al., Cell 68:143-155 (1992): Engelhardt et al., Human Genet. Ther. 4:759-769 (1993); Yang et al.. Nature Genet. 7:362-369 (1994): Wilson et al.. Nature

365:691-692 (1993); and U.S. Patent No. 5,652,224. which are herein incorporated by reference. For example. the adenovirus vector Ad2 is useful and can be grown in human 293 cells. These cells contain the E1 region of adenovirus and constitutively express Ela and Elb. which complement the defective adenoviruses by providing the products of the genes deleted from the vector. In addition to Ad2, other varieties of adenovirus (e.g., Ad3, Ad5, and Ad7) are also useful in the present invention.

Preferably, the adenoviruses used in the present invention are replication deficient. Replication deficient adenoviruses require the aid of a helper virus and/or packaging cell line to form infectious particles. The resulting virus is capable of infecting cells and can express a polynucleotide of interest which is operably linked to a promoter, but cannot replicate in most cells. Replication deficient adenoviruses may be deleted in one or more of all or a portion of the following genes: E1a, E1b, E3, E4, E2a, or L1 through L5.

In certain other embodiments, the cells are engineered, ex vivo or in vivo, using an adeno-associated virus (AAV). AAVs are naturally occurring defective viruses that require helper viruses to produce infectious particles (Muzyczka, N., Curr. Topics in Microbiol. Immunol. 158:97 (1992)). It is also one of the few viruses that may integrate its DNA into non-dividing cells. Vectors containing as little as 300 base pairs of AAV can be packaged and can integrate, but space for exogenous DNA is limited to about 4.5 kb. Methods for producing and using such AAVs are known in the art. See, for example, U.S. Patent Nos. 5,139,941, 5,173,414, 5,354,678, 5,436,146, 5,474,935, 5,478,745, and 5,589,377.

For example, an appropriate AAV vector for use in the present invention will include all the sequences necessary for DNA replication, encapsidation, and host-cell integration. The polynucleotide construct is inserted into the AAV vector using standard cloning methods, such as those found in Sambrook et al., Molecular Cloning: A Laboratory Manual, Cold Spring Harbor Press (1989). The recombinant AAV vector is then transfected into packaging cells which are infected with a helper virus, using any standard technique, including lipofection, electroporation, calcium phosphate precipitation. etc. Appropriate helper viruses include adenoviruses.

cytomegaloviruses, vaccinia viruses, or herpes viruses. Once the packaging cells are transfected and infected, they will produce infectious AAV viral particles which contain the polynucleotide construct. These viral particles are then used to transduce eukaryotic cells, either ex vivo or in vivo. The transduced cells will contain the polynucleotide construct integrated into its genome, and will express a polypeptide of the invention.

Another method of gene therapy involves operably associating heterologous control regions and endogenous polynucleotide sequences (e.g. encoding a polypeptide of the present invention) via homologous recombination (see, e.g., U.S. Patent No. 5,641,670, issued June 24, 1997; International Publication No. WO 96/29411, published September 26, 1996; International Publication No. WO 94/12650, published August 4, 1994; Koller et al., Proc. Natl. Acad. Sci. USA 86:8932-8935 (1989); and Zijlstra et al., Nature 342:435-438 (1989). This method involves the activation of a gene which is present in the target cells, but which is not normally expressed in the cells, or is expressed at a lower level than desired.

Polynucleotide constructs are made, using standard techniques known in the art, which contain the promoter with targeting sequences flanking the promoter. Suitable promoters are described herein. The targeting sequence is sufficiently complementary to an endogenous sequence to permit homologous recombination of the promoter-targeting sequence with the endogenous sequence. The targeting sequence will be sufficiently near the 5' end of the desired endogenous polynucleotide sequence so the promoter will be operably linked to the endogenous sequence upon homologous recombination.

The promoter and the targeting sequences can be amplified using PCR. Preferably, the amplified promoter contains distinct restriction enzyme sites on the 5' and 3' ends. Preferably, the 3' end of the first targeting sequence contains the same restriction enzyme site as the 5' end of the amplified promoter and the 5' end of the second targeting sequence contains the same restriction site as the 3' end of the amplified promoter. The amplified promoter and targeting sequences are digested and ligated together.

The promoter-targeting sequence construct is delivered to the cells, either as naked polynucleotide, or in conjunction with transfection-facilitating agents, such as liposomes, viral sequences, viral particles, whole viruses, lipofection, precipitating agents, etc., described in more detail above. The P promoter-targeting sequence can be delivered by any method, included direct needle injection, intravenous injection, topical administration, catheter infusion, particle accelerators, etc. The methods are described in more detail below.

The promoter-targeting sequence construct is taken up by cells. Homologous recombination between the construct and the endogenous sequence takes place, such that an endogenous sequence is placed under the control of the promoter. The promoter then drives the expression of the endogenous sequence.

Preferably, the polynucleotide encoding a polypeptide of the present invention contains a secretory signal sequence that facilitates secretion of the protein. Typically, the signal sequence is positioned in the coding region of the polynucleotide to be expressed towards or at the 5' end of the coding region. The signal sequence may be homologous or heterologous to the polynucleotide of interest and may be homologous or heterologous to the cells to be transfected. Additionally, the signal sequence may be chemically synthesized using methods known in the art.

Any mode of administration of any of the above-described polynucleotides constructs can be used so long as the mode results in the expression of one or more molecules in an amount sufficient to provide a therapeutic effect. This includes direct needle injection, systemic injection, catheter infusion, biolistic injectors, particle accelerators (i.e., "gene guns"), gelfoam sponge depots, other commercially available depot materials, osmotic pumps (e.g., Alza minipumps), oral or suppositorial solid (tablet or pill) pharmaceutical formulations, and decanting or topical applications during surgery. For example, direct injection of naked calcium phosphate-precipitated plasmid into rat liver and rat spleen or a protein-coated plasmid into the portal vein has resulted in gene expression of the foreign gene in the rat livers (Kaneda et al., Science 243:375 (1989)).

A preferred method of local administration is by direct injection. Preferably, a recombinant molecule of the present invention complexed with a delivery vehicle is administered by direct injection into or locally within the area of arteries. Administration of a composition locally within the area of arteries refers to injecting the composition centimeters and preferably, millimeters within arteries.

Another method of local administration is to contact a polynucleotide construct of the present invention in or around a surgical wound. For example, a patient can undergo surgery and the polynucleotide construct can be coated on the surface of tissue inside the wound or the construct can be injected into areas of tissue inside the wound.

Therapeutic compositions useful in systemic administration, include recombinant molecules of the present invention complexed to a targeted delivery vehicle of the present invention. Suitable delivery vehicles for use with systemic administration comprise liposomes comprising ligands for targeting the vehicle to a particular site.

Preferred methods of systemic administration, include intravenous injection, aerosol, oral and percutaneous (topical) delivery. Intravenous injections can be performed using methods standard in the art. Aerosol delivery can also be performed using methods standard in the art (see, for example, Stribling et al., Proc. Natl. Acad. Sci. USA 189:11277-11281, 1992, which is incorporated herein by reference). Oral delivery can be performed by complexing a polynucleotide construct of the present invention to a carrier capable of withstanding degradation by digestive enzymes in the gut of an animal. Examples of such carriers, include plastic capsules or tablets, such as those known in the art. Topical delivery can be performed by mixing a polynucleotide construct of the present invention with a lipophilic reagent (e.g., DMSO) that is capable of passing into the skin.

Determining an effective amount of substance to be delivered can depend upon a number of factors including, for example, the chemical structure and biological activity of the substance, the age and weight of the animal, the precise condition requiring treatment and its severity, and the route of administration. The

frequency of treatments depends upon a number of factors, such as the amount of polynucleotide constructs administered per dose, as well as the health and history of the subject. The precise amount, number of doses, and timing of doses will be determined by the attending physician or veterinarian.

Therapeutic compositions of the present invention can be administered to any animal, preferably to mammals and birds. Preferred mammals include humans, dogs, cats, mice, rats, rabbits sheep, cattle, horses and pigs, with humans being particularly preferred.

Biological Activities

Polynucleotides or polypeptides, or agonists or antagonists of the present invention, can be used in assays to test for one or more biological activities. If these polynucleotides or polypeptides, or agonists or antagonists of the present invention, do exhibit activity in a particular assay, it is likely that these molecules may be involved in the diseases associated with the biological activity. Thus, the polynucleotides and polypeptides, and agonists or antagonists could be used to treat the associated disease.

Immune Activity

A polypeptide or polynucleotide, or agonists or antagonists of the present invention may be useful in treating deficiencies or disorders of the immune system, by activating or inhibiting the proliferation, differentiation, or mobilization (chemotaxis) of immune cells. Immune cells develop through a process called hematopoiesis, producing myeloid (platelets, red blood cells, neutrophils, and macrophages) and lymphoid (B and T lymphocytes) cells from pluripotent stem cells. The etiology of these immune deficiencies or disorders may be genetic, somatic, such as cancer or some autoimmune disorders, acquired (e.g., by chemotherapy or toxins), or infectious. Moreover, polynucleotides or polypeptides, or agonists or antagonists of the present invention can be used as a marker or detector of a particular immune system disease or disorder.

Polynucleotides or polypeptides, or agonists or antagonists of the present invention may be useful in treating or detecting deficiencies or disorders of hematopoietic cells. Polynucleotides or polypeptides. or agonists or antagonists of the present invention could be used to increase differentiation and proliferation of hematopoietic cells, including the pluripotent stem cells, in an effort to treat those disorders associated with a decrease in certain (or many) types hematopoietic cells. Examples of immunologic deficiency syndromes include, but are not limited to: blood protein disorders (e.g. agammaglobulinemia, dysgammaglobulinemia), ataxia telangiectasia, common variable immunodeficiency, Digeorge Syndrome, HIV infection, HTLV-BLV infection, leukocyte adhesion deficiency syndrome, lymphopenia. phagocyte bactericidal dysfunction, severe combined immunodeficiency (SCIDs), Wiskott-Aldrich Disorder, anemia, thrombocytopenia, or hemoglobinuria.

Moreover, polynucleotides or polypeptides, or agonists or antagonists of the present invention could also be used to modulate hemostatic (the stopping of bleeding) or thrombolytic activity (clot formation). For example, by increasing hemostatic or thrombolytic activity, polynucleotides or polypeptides, or agonists or antagonists of the present invention could be used to treat blood coagulation disorders (e.g., afibrinogenemia, factor deficiencies), blood platelet disorders (e.g. thrombocytopenia), or wounds resulting from trauma. surgery, or other causes. Alternatively, polynucleotides or polypeptides, or agonists or antagonists of the present invention that can decrease hemostatic or thrombolytic activity could be used to inhibit or dissolve clotting. These molecules could be important in the treatment of heart attacks (infarction), strokes, or scarring.

Polynucleotides or polypeptides. or agonists or antagonists of the present invention may also be useful in treating or detecting autoimmune disorders. Many autoimmune disorders result from inappropriate recognition of self as foreign material by immune cells. This inappropriate recognition results in an immune response leading to the destruction of the host tissue. Therefore, the administration of polynucleotides or polypeptides. or agonists or antagonists of the present invention

that can inhibit an immune response, particularly the proliferation, differentiation, or chemotaxis of T-cells, may be an effective therapy in preventing autoimmune disorders.

Examples of autoimmune disorders that can be treated or detected include, but are not limited to: Addison's Disease, hemolytic anemia, antiphospholipid syndrome, rheumatoid arthritis, dermatitis, allergic encephalomyelitis, glomerulonephritis, Goodpasture's Syndrome, Graves' Disease, Multiple Sclerosis, Myasthenia Gravis, Neuritis, Ophthalmia, Bullous Pemphigoid, Pemphigus, Polyendocrinopathies, Purpura, Reiter's Disease, Stiff-Man Syndrome, Autoimmune Thyroiditis, Systemic Lupus Erythematosus, Autoimmune Pulmonary Inflammation, Guillain-Barre Syndrome, insulin dependent diabetes mellitis, and autoimmune inflammatory eye disease.

Similarly, allergic reactions and conditions, such as asthma (particularly allergic asthma) or other respiratory problems, may also be treated by polynucleotides or polypeptides, or agonists or antagonists of the present invention. Moreover, these molecules can be used to treat anaphylaxis, hypersensitivity to an antigenic molecule, or blood group incompatibility.

Polynucleotides or polypeptides, or agonists or antagonists of the present invention may also be used to treat and/or prevent organ rejection or graft-versus-host disease (GVHD). Organ rejection occurs by host immune cell destruction of the transplanted tissue through an immune response. Similarly, an immune response is also involved in GVHD, but, in this case, the foreign transplanted immune cells destroy the host tissues. The administration of polynucleotides or polypeptides, or agonists or antagonists of the present invention that inhibits an immune response, particularly the proliferation, differentiation, or chemotaxis of T-cells, may be an effective therapy in preventing organ rejection or GVHD.

Similarly, polynucleotides or polypeptides, or agonists or antagonists of the present invention may also be used to modulate inflammation. For example, polynucleotides or polypeptides, or agonists or antagonists of the present invention may inhibit the proliferation and differentiation of cells involved in an inflammatory

response. These molecules can be used to treat inflammatory conditions, both chronic and acute conditions, including chronic prostatitis, granulomatous prostatitis and malacoplakia, inflammation associated with infection (e.g., septic shock, sepsis, or systemic inflammatory response syndrome (SIRS)), ischemia-reperfusion injury, endotoxin lethality, arthritis, complement-mediated hyperacute rejection, nephritis, cytokine or chemokine induced lung injury, inflammatory bowel disease. Crohn's disease, or resulting from over production of cytokines (e.g., TNF or IL-1.)

Hyperproliferative Disorders

Polynucleotides or polypeptides, or agonists or antagonists of the present invention can be used to treat or detect hyperproliferative disorders, including neoplasms. Polynucleotides or polypeptides, or agonists or antagonists of the present invention may inhibit the proliferation of the disorder through direct or indirect interactions. Alternatively, Polynucleotides or polypeptides, or agonists or antagonists of the present invention may proliferate other cells which can inhibit the hyperproliferative disorder.

For example, by increasing an immune response, particularly increasing antigenic qualities of the hyperproliferative disorder or by proliferating, differentiating, or mobilizing T-cells, hyperproliferative disorders can be treated. This immune response may be increased by either enhancing an existing immune response, or by initiating a new immune response. Alternatively, decreasing an immune response may also be a method of treating hyperproliferative disorders, such as a chemotherapeutic agent.

Examples of hyperproliferative disorders that can be treated or detected by Polynucleotides or polypeptides, or agonists or antagonists of the present invention include, but are not limited to neoplasms located in the: colon, abdomen, bone, breast, digestive system, liver, pancreas, peritoneum, endocrine glands (adrenal, parathyroid, pituitary, testicles, ovary, thymus, thyroid), eye, head and neck, nervous (central and peripheral), lymphatic system, pelvic, skin, soft tissue, spleen, thoracic, and urogenital.

Similarly, other hyperproliferative disorders can also be treated or detected by polynucleotides or polypeptides, or agonists or antagonists of the present invention. Examples of such hyperproliferative disorders include, but are not limited to: hypergammaglobulinemia, lymphoproliferative disorders, paraproteinemias, purpura, sarcoidosis, Sezary Syndrome, Waldenstron's Macroglobulinemia, Gaucher's Disease, histiocytosis, and any other hyperproliferative disease, besides neoplasia, located in an organ system listed above.

One preferred embodiment utilizes polynucleotides of the present invention to inhibit aberrant cellular division, by gene therapy using the present invention, and/or protein fusions or fragments thereof.

Thus, the present invention provides a method for treating cell proliferative disorders by inserting into an abnormally proliferating cell a polynucleotide of the present invention, wherein said polynucleotide represses said expression.

Another embodiment of the present invention provides a method of treating cell-proliferative disorders in individuals comprising administration of one or more active gene copies of the present invention to an abnormally proliferating cell or cells. In a preferred embodiment, polynucleotides of the present invention is a DNA construct comprising a recombinant expression vector effective in expressing a DNA sequence encoding said polynucleotides. In another preferred embodiment of the present invention, the DNA construct encoding the poynucleotides of the present invention is inserted into cells to be treated utilizing a retrovirus, or more preferrably an adenoviral vector (See G J. Nabel, et. al., PNAS 1999 96: 324-326, which is hereby incorporated by reference). In a most preferred embodiment, the viral vector is defective and will not transform non-proliferating cells, only proliferating cells. Moreover, in a preferred embodiment, the polynucleotides of the present invention inserted into proliferating cells either alone, or in combination with or fused to other polynucleotides, can then be modulated via an external stimulus (i.e. magnetic, specific small molecule, chemical, or drug administration, etc.), which acts upon the promoter upstream of said polynucleotides to induce expression of the encoded protein product. As such the beneficial therapeutic affect of the present invention

may be expressly modulated (i.e. to increase. decrease, or inhibit expression of the present invention) based upon said external stimulus.

Polynucleotides of the present invention may be useful in repressing expression of oncogenic genes or antigens. By "repressing expression of the oncogenic genes " is intended the suppression of the transcription of the gene, the degradation of the gene transcript (pre-message RNA), the inhibition of splicing, the destruction of the messenger RNA, the prevention of the post-translational modifications of the protein, the destruction of the protein, or the inhibition of the normal function of the protein.

For local administration to abnormally proliferating cells, polynucleotides of the present invention may be administered by any method known to those of skill in the art including, but not limited to transfection, electroporation, microinjection of cells, or in vehicles such as liposomes, lipofectin, or as naked polynucleotides, or any other method described throughout the specification. The polynucleotide of the present invention may be delivered by known gene delivery systems such as, but not limited to, retroviral vectors (Gilboa, J. Virology 44:845 (1982); Hocke, Nature 320:275 (1986); Wilson, et al., Proc. Natl. Acad. Sci. U.S.A. 85:3014), vaccinia virus system (Chakrabarty et al., Mol. Cell Biol. 5:3403 (1985) or other efficient DNA delivery systems (Yates et al., Nature 313:812 (1985)) known to those skilled in the art. These references are exemplary only and are hereby incorporated by reference. In order to specifically deliver or transfect cells which are abnormally proliferating and spare non-dividing cells, it is preferable to utilize a retrovirus, or adenoviral (as described in the art and elsewhere herein) delivery system known to those of skill in the art. Since host DNA replication is required for retroviral DNA to integrate and the retrovirus will be unable to self replicate due to the lack of the retrovirus genes needed for its life cycle. Utilizing such a retroviral delivery system for polynucleotides of the present invention will target said gene and constructs to abnormally proliferating cells and will spare the non-dividing normal cells.

The polynucleotides of the present invention may be delivered directly to cell proliferative disorder/disease sites in internal organs. body cavities and the like by use

of imaging devices used to guide an injecting needle directly to the disease site. The polynucleotides of the present invention may also be administered to disease sites at the time of surgical intervention.

By "cell proliferative disease" is meant any human or animal disease or disorder, affecting any one or any combination of organs, cavities, or body parts, which is characterized by single or multiple local abnormal proliferations of cells, groups of cells, or tissues, whether benign or malignant.

Any amount of the polynucleotides of the present invention may be administered as long as it has a biologically inhibiting effect on the proliferation of the treated cells. Moreover, it is possible to administer more than one of the polynucleotide of the present invention simultaneously to the same site. By "biologically inhibiting" is meant partial or total growth inhibition as well as decreases in the rate of proliferation or growth of the cells. The biologically inhibitory dose may be determined by assessing the effects of the polynucleotides of the present invention on target malignant or abnormally proliferating cell growth in tissue culture, tumor growth in animals and cell cultures, or any other method known to one of ordinary skill in the art.

The present invention is further directed to antibody-based therapies which involve administering of anti-polypeptides and anti-polynucleotide antibodies to a mammalian, preferably human, patient for treating one or more of the described disorders. Methods for producing anti-polypeptides and anti-polynucleotide antibodies polyclonal and monoclonal antibodies are described in detail elsewhere herein. Such antibodies may be provided in pharmaceutically acceptable compositions as known in the art or as described herein.

A summary of the ways in which the antibodies of the present invention may be used therapeutically includes binding polynucleotides or polypeptides of the present invention locally or systemically in the body or by direct cytotoxicity of the antibody, e.g. as mediated by complement (CDC) or by effector cells (ADCC). Some of these approaches are described in more detail below. Armed with the teachings provided herein, one of ordinary skill in the art will know how to use the antibodies of

the present invention for diagnostic. monitoring or therapeutic purposes without undue experimentation.

In particular, the antibodies. fragments and derivatives of the present invention are useful for treating a subject having or developing cell proliferative and/or differentiation disorders as described herein. Such treatment comprises administering a single or multiple doses of the antibody, or a fragment, derivative, or a conjugate thereof.

The antibodies of this invention may be advantageously utilized in combination with other monoclonal or chimeric antibodies, or with lymphokines or hematopoietic growth factors, for example., which serve to increase the number or activity of effector cells which interact with the antibodies.

It is preferred to use high affinity and/or potent in vivo inhibiting and/or neutralizing antibodies against polypeptides or polynucleotides of the present invention, fragments or regions thereof, for both immunoassays directed to and therapy of disorders related to polynucleotides or polypeptides, including fragements thereof, of the present invention. Such antibodies, fragments, or regions, will preferably have an affinity for polynucleotides or polypeptides, including fragements thereof. Preferred binding affinities include those with a dissociation constant or Kd less than $5X10^{-6}M$, $10^{-6}M$, $5X10^{-7}M$, $10^{-7}M$, $5X10^{-8}M$, $10^{-8}M$, $5X10^{-9}M$, $10^{-9}M$, $5X10^{-10}M$, $10^{-10}M$, $5X10^{-11}M$, $10^{-11}M$, $5X10^{-12}M$, $10^{-12}M$, $5X10^{-13}M$, $10^{-13}M$, $5X10^{-14}M$, $10^{-14}M$, $5X10^{-15}M$, and $10^{-15}M$.

Moreover, polypeptides of the present invention are useful in inhibiting the angiogenesis of proliferative cells or tissues, either alone, as a protein fusion, or in combination with other polypeptides directly or indirectly, as described elsewhere herein. In a most preferred embodiment, said anti-angiogenesis effect may be achieved indirectly, for example, through the inhibition of hematopoietic, tumor-specific cells, such as tumor-associated macrophages (See Joseph IB, et al. J Natl Cancer Inst, 90(21):1648-53 (1998). which is hereby incorporated by reference). Antibodies directed to polypeptides or polynucleotides of the present invention may also result in inhibition of angiogenesis directly, or indirectly (See Witte L. et al..

Cancer Metastasis Rev. 17(2):155-61 (1998), which is hereby incorporated by reference)).

Polypeptides, including protein fusions, of the present invention, or fragments thereof may be useful in inhibiting proliferative cells or tissues through the induction of apoptosis. Said polypeptides may act either directly, or indirectly to induce apoptosis of proliferative cells and tissues, for example in the activation of a death-domain receptor, such as tumor necrosis factor (TNF) receptor-1, CD95 (Fas/APO-1), TNF-receptor-related apoptosis-mediated protein (TRAMP) and TNF-related apoptosis-inducing ligand (TRAIL) receptor-1 and -2 (See Schulze-Osthoff K, et.al., Eur J Biochem 254(3):439-59 (1998), which is hereby incorporated by reference). Moreover, in another preferred embodiment of the present invention, said polypeptides may induce apoptosis through other mechanisms, such as in the activation of other proteins which will activate apoptosis, or through stimulating the expression of said proteins, either alone or in combination with small molecule drugs or adjuviants, such as apoptonin, galectins, thioredoxins, antiinflammatory proteins (See for example, Mutat Res 400(1-2):447-55 (1998), Med Hypotheses.50(5):423-33 (1998), Chem Biol Interact. Apr 24;111-112:23-34 (1998), J Mol Med.76(6):402-12 (1998), Int J Tissue React;20(1):3-15 (1998), which are all hereby incorporated by reference).

Polypeptides, including protein fusions to, or fragments thereof, of the present invention are useful in inhibiting the metastasis of proliferative cells or tissues. Inhibition may occur as a direct result of administering polypeptides, or antibodies directed to said polypeptides as described elsewere herein, or indirectly, such as activating the expression of proteins known to inhibit metastasis, for example alpha 4 integrins, (See, e.g., Curr Top Microbiol Immunol 1998;231:125-41, which is hereby incorporated by reference). Such thereapeutic affects of the present invention may be achieved either alone, or in combination with small molecule drugs or adjuvants.

In another embodiment, the invention provides a method of delivering compositions containing the polypeptides of the invention (e.g., compositions containing polypeptides or polypeptide antibodes associated with heterologous

polypeptides. heterologous nucleic acids. toxins, or prodrugs) to targeted cells expressing the polypeptide of the present invention. Polypeptides or polypeptide antibodes of the invention may be associated with with heterologous polypeptides, heterologous nucleic acids, toxins. or prodrugs via hydrophobic, hydrophilic, ionic and/or covalent interactions. Polypeptides, protein fusions to. or fragments thereof, of the present invention are useful in enhancing the immunogenicity and/or antigenicity of proliferating cells or tissues, either directly, such as would occur if the polypeptides of the present invention 'vaccinated' the immune response to respond to proliferative antigens and immunogens, or indirectly, such as in activating the expression of proteins known to enhance the immune response (e.g. chemokines), to said antigens and immunogens.

Cardiovascular Disorders

Polynucleotides or polypeptides, or agonists or antagonists of the present invention, may be used to treat cardiovascular disorders, including peripheral artery disease. such as limb ischemia.

Cardiovascular disorders include cardiovascular abnormalities, such as arterio-arterial fistula, arteriovenous fistula. cerebral arteriovenous malformations, congenital heart defects, pulmonary atresia, and Scimitar Syndrome. Congenital heart defects include aortic coarctation, cor triatriatum, coronary vessel anomalies, crisscross heart, dextrocardia, patent ductus arteriosus, Ebstein's anomaly, Eisenmenger complex, hypoplastic left heart syndrome, levocardia, tetralogy of fallot, transposition of great vessels, double outlet right ventricle, tricuspid atresia, persistent truncus arteriosus, and heart septal defects, such as aortopulmonary septal defect, endocardial cushion defects, Lutembacher's Syndrome, trilogy of Fallot, ventricular heart septal defects.

Cardiovascular disorders also include heart disease, such as arrhythmias, carcinoid heart disease, high cardiac output, low cardiac output, cardiac tamponade, endocarditis (including bacterial), heart aneurysm, cardiac arrest, congestive heart failure, congestive cardiomyopathy, paroxysmal dyspnea, cardiac edema, heart hypertrophy. congestive cardiomyopathy, left ventricular hypertrophy, right

ventricular hypertrophy, post-infarction heart rupture, ventricular septal rupture. heart valve diseases, myocardial diseases, myocardial ischemia, pericardial effusion, pericarditis (including constrictive and tuberculous), pneumopericardium, postpericardiotomy syndrome. pulmonary heart disease, rheumatic heart disease, ventricular dysfunction, hyperemia. cardiovascular pregnancy complications, Scimitar Syndrome, cardiovascular syphilis. and cardiovascular tuberculosis.

Arrhythmias include sinus arrhythmia, atrial fibrillation, atrial flutter, bradycardia, extrasystole, Adams-Stokes Syndrome, bundle-branch block, sinoatrial block, long QT syndrome, parasystole, Lown-Ganong-Levine Syndrome, Mahaim-type pre-excitation syndrome, Wolff-Parkinson-White syndrome, sick sinus syndrome, tachycardias, and ventricular fibrillation. Tachycardias include paroxysmal tachycardia, supraventricular tachycardia, accelerated idioventricular rhythm, atrioventricular nodal reentry tachycardia, ectopic atrial tachycardia, ectopic junctional tachycardia, sinoatrial nodal reentry tachycardia, sinus tachycardia, Torsades de Pointes, and ventricular tachycardia.

Heart valve disease include aortic valve insufficiency, aortic valve stenosis, hear murmurs, aortic valve prolapse, mitral valve prolapse, tricuspid valve prolapse, mitral valve insufficiency, mitral valve stenosis, pulmonary atresia, pulmonary valve insufficiency, pulmonary valve stenosis, tricuspid atresia, tricuspid valve insufficiency, and tricuspid valve stenosis.

Myocardial diseases include alcoholic cardiomyopathy, congestive cardiomyopathy, hypertrophic cardiomyopathy, aortic subvalvular stenosis, pulmonary subvalvular stenosis, restrictive cardiomyopathy, Chagas cardiomyopathy, endocardial fibroelastosis, endomyocardial fibrosis, Kearns Syndrome, myocardial reperfusion injury, and myocarditis.

Myocardial ischemias include coronary disease, such as angina pectoris, coronary aneurysm, coronary arteriosclerosis, coronary thrombosis, coronary vasospasm, myocardial infarction and myocardial stunning.

Cardiovascular diseases also include vascular diseases such as aneurysms, angiodysplasia. angiomatosis. bacillary angiomatosis. Hippel-Lindau Disease.

Klippel-Trenaunay-Weber Syndrome. Sturge-Weber Syndrome, angioneurotic edema. aortic diseases, Takayasu's Arteritis. aortitis, Leriche's Syndrome, arterial occlusive diseases, arteritis, enarteritis, polyarteritis nodosa, cerebrovascular disorders, diabetic angiopathies, diabetic retinopathy. embolisms. thrombosis, erythromelalgia, hemorrhoids, hepatic veno-occlusive disease, hypertension, hypotension, ischemia, peripheral vascular diseases, phlebitis, pulmonary veno-occlusive disease, Raynaud's disease, CREST syndrome, retinal vein occlusion, Scimitar syndrome, superior vena cava syndrome, telangiectasia, atacia telangiectasia, hereditary hemorrhagic telangiectasia, varicocele, varicose veins, varicose ulcer, vasculitis, and venous insufficiency.

Aneurysms include dissecting aneurysms, false aneurysms, infected aneurysms. ruptured aneurysms, aortic aneurysms, cerebral aneurysms, coronary aneurysms, heart aneurysms, and iliac aneurysms.

Arterial occlusive diseases include arteriosclerosis, intermittent claudication, carotid stenosis, fibromuscular dysplasias, mesenteric vascular occlusion, Moyamoya disease, renal artery obstruction, retinal artery occlusion, and thromboangiitis obliterans.

Cerebrovascular disorders include carotid artery diseases, cerebral amyloid angiopathy, cerebral aneurysm, cerebral anoxia, cerebral arteriosclerosis, cerebral arteriovenous malformation, cerebral artery diseases, cerebral embolism and thrombosis, carotid artery thrombosis, sinus thrombosis, Wallenberg's syndrome, cerebral hemorrhage, epidural hematoma, subdural hematoma, subaraxhnoid hemorrhage, cerebral infarction, cerebral ischemia (including transient), subclavian steal syndrome, periventricular leukomalacia, vascular headache, cluster headache, migraine, and vertebrobasilar insufficiency.

Embolisms include air embolisms, amniotic fluid embolisms, cholesterol embolisms, blue toe syndrome, fat embolisms, pulmonary embolisms, and thromoboembolisms. Thrombosis include coronary thrombosis, hepatic vein thrombosis, retinal vein occlusion, carotid artery thrombosis, sinus thrombosis, Wallenberg's syndrome. and thrombophlebitis.

Ischemia includes cerebral ischemia, ischemic colitis, compartment syndromes, anterior compartment syndrome, myocardial ischemia, reperfusion injuries, and peripheral limb ischemia. Vasculitis includes aortitis, arteritis, Behcet's Syndrome, Churg-Strauss Syndrome, mucocutaneous lymph node syndrome, thromboangiitis obliterans, hypersensitivity vasculitis, Schoenlein-Henoch purpura, allergic cutaneous vasculitis, and Wegener's granulomatosis.

Polynucleotides or polypeptides, or agonists or antagonists of the present invention, are especially effective for the treatment of critical limb ischemia and coronary disease.

Polypeptides may be administered using any method known in the art, including, but not limited to, direct needle injection at the delivery site, intravenous injection, topical administration, catheter infusion, biolistic injectors, particle accelerators, gelfoam sponge depots, other commercially available depot materials, osmotic pumps, oral or suppositorial solid pharmaceutical formulations, decanting or topical applications during surgery, aerosol delivery. Such methods are known in the art. Polypeptides may be administered as part of a Therapeutic, described in more detail below. Methods of delivering polynucleotides are described in more detail herein.

Anti-Angiogenesis Activity

The naturally occurring balance between endogenous stimulators and inhibitors of angiogenesis is one in which inhibitory influences predominate. Rastinejad *et al.*, *Cell* *56*:345-355 (1989). In those rare instances in which neovascularization occurs under normal physiological conditions, such as wound healing, organ regeneration, embryonic development, and female reproductive processes, angiogenesis is stringently regulated and spatially and temporally delimited. Under conditions of pathological angiogenesis such as that characterizing solid tumor growth, these regulatory controls fail. Unregulated angiogenesis becomes pathologic and sustains progression of many neoplastic and non-neoplastic diseases. A number of serious diseases are dominated by abnormal neovascularization

including solid tumor growth and metastases. arthritis, some types of eye disorders, and psoriasis. See, e.g., reviews by Moses *et al., Biotech. 9*:630-634 (1991); Folkman *et al., N. Engl. J. Med.*, *333*:1757-1763 (1995); Auerbach *et al., J. Microvasc. Res. 29*:401-411 (1985); Folkman, Advances in Cancer Research, eds. Klein and Weinhouse, Academic Press, New York, pp. 175-203 (1985); Patz, *Am. J. Opthalmol. 94*:715-743 (1982); and Folkman *et al.*, Science *221*:719-725 (1983). In a number of pathological conditions, the process of angiogenesis contributes to the disease state. For example, significant data have accumulated which suggest that the growth of solid tumors is dependent on angiogenesis. Folkman and Klagsbrun, *Science 235*:442-447 (1987).

The polynucleotides encoding a polypeptide of the present invention may be administered along with other polynucleotides encoding an angiogenic protein. Examples of angiogenic proteins include, but are not limited to, acidic and basic fibroblast growth factors, VEGF-1, VEGF-2, VEGF-3, epidermal growth factor alpha and beta, platelet-derived endothelial cell growth factor, platelet-derived growth factor, tumor necrosis factor alpha, hepatocyte growth factor, insulin like growth factor, colony stimulating factor, macrophage colony stimulating factor, granulocyte/macrophage colony stimulating factor, and nitric oxide synthase.

The present invention provides for treatment of diseases or disorders associated with neovascularization by administration of the polynucleotides and/or polypeptides of the invention, as well as agonists or antagonists of the present invention. Malignant and metastatic conditions which can be treated with the polynucleotides and polypeptides, or agonists or antagonists of the invention include, but are not limited to, malignancies, solid tumors, and cancers described herein and otherwise known in the art (for a review of such disorders, see Fishman *et al.*, Medicine, 2d Ed., J. B. Lippincott Co., Philadelphia (1985)).Thus, the present invention provides a method of treating an angiogenesis-related disease and/or disorder, comprising administering to an individual in need thereof a therapeutically effective amount of a polynucleotide, polypeptide, antagonist and/or agonist of the invention. For example. polynucleotides. polypeptides. antagonists and/or agonists

may be utilized in a variety of additional methods in order to therapeutically treat a cancer or tumor. Cancers which may be treated with polynucleotides, polypeptides, antagonists and/or agonists include. but are not limited to solid tumors, including prostate, lung, breast, ovarian. stomach, pancreas, larynx, esophagus, testes, liver, parotid, biliary tract, colon, rectum. cervix, uterus, endometrium, kidney, bladder, thyroid cancer; primary tumors and metastases; melanomas; glioblastoma; Kaposi's sarcoma; leiomyosarcoma; non- small cell lung cancer; colorectal cancer; advanced malignancies; and blood born tumors such as leukemias. For example, polynucleotides, polypeptides, antagonists and/or agonists may be delivered topically, in order to treat cancers such as skin cancer, head and neck tumors, breast tumors, and Kaposi's sarcoma.

Within yet other aspects, polynucleotides, polypeptides, antagonists and/or agonists may be utilized to treat superficial forms of bladder cancer by, for example, intravesical administration. Polynucleotides, polypeptides, antagonists and/or agonists may be delivered directly into the tumor, or near the tumor site, via injection or a catheter. Of course, as the artisan of ordinary skill will appreciate, the appropriate mode of administration will vary according to the cancer to be treated. Other modes of delivery are discussed herein.

Polynucleotides, polypeptides. antagonists and/or agonists may be useful in treating other disorders, besides cancers. which involve angiogenesis. These disorders include, but are not limited to: benign tumors, for example hemangiomas, acoustic neuromas, neurofibromas, trachomas, and pyogenic granulomas; artheroscleric plaques; ocular angiogenic diseases, for example, diabetic retinopathy, retinopathy of prematurity, macular degeneration, corneal graft rejection, neovascular glaucoma, retrolental fibroplasia, rubeosis, retinoblastoma, uvietis and Pterygia (abnormal blood vessel growth) of the eye; rheumatoid arthritis; psoriasis; delayed wound healing; endometriosis; vasculogenesis; granulations; hypertrophic scars (keloids); nonunion fractures; scleroderma; trachoma; vascular adhesions; myocardial angiogenesis; coronary collaterals; cerebral collaterals; arteriovenous malformations; ischemic limb angiogenesis: Osler-Webber Syndrome; plaque neovascularization:

telangiectasia; hemophiliac joints; angiofibroma; fibromuscular dysplasia; wound granulation; Crohn's disease; and atherosclerosis.

For example, within one aspect of the present invention methods are provided for treating hypertrophic scars and keloids. comprising the step of administering a polynucleotide, polypeptide, antagonist and/or agonist of the invention to a hypertrophic scar or keloid.

Within one embodiment of the present invention polynucleotides, polypeptides, antagonists and/or agonists are directly injected into a hypertrophic scar or keloid, in order to prevent the progression of these lesions. This therapy is of particular value in the prophylactic treatment of conditions which are known to result in the development of hypertrophic scars and keloids (e.g., burns), and is preferably initiated after the proliferative phase has had time to progress (approximately 14 days after the initial injury), but before hypertrophic scar or keloid development. As noted above, the present invention also provides methods for treating neovascular diseases of the eye, including for example, corneal neovascularization, neovascular glaucoma. proliferative diabetic retinopathy, retrolental fibroplasia and macular degeneration.

Moreover, Ocular disorders associated with neovascularization which can be treated with the polynucleotides and polypeptides of the present invention (including agonists and/or antagonists) include, but are not limited to: neovascular glaucoma, diabetic retinopathy, retinoblastoma, retrolental fibroplasia, uveitis, retinopathy of prematurity macular degeneration, corneal graft neovascularization, as well as other eye inflammatory diseases, ocular tumors and diseases associated with choroidal or iris neovascularization. See, e.g., reviews by Waltman *et al., Am. J. Ophthal. 85*:704-710 (1978) and Gartner *et al., Surv. Ophthal. 22*:291-312 (1978).

Thus, within one aspect of the present invention methods are provided for treating neovascular diseases of the eye such as corneal neovascularization (including corneal graft neovascularization), comprising the step of administering to a patient a therapeutically effective amount of a compound (as described above) to the cornea, such that the formation of blood vessels is inhibited. Briefly, the cornea is a tissue which normally lacks blood vessels. In certain pathological conditions however.

capillaries may extend into the cornea from the pericorneal vascular plexus of the limbus. When the cornea becomes vascularized, it also becomes clouded. resulting in a decline in the patient's visual acuity. Visual loss may become complete if the cornea completely opacitates. A wide variety of disorders can result in corneal neovascularization, including for example, corneal infections (e.g., trachoma, herpes simplex keratitis, leishmaniasis and onchocerciasis), immunological processes (e.g., graft rejection and Stevens-Johnson's syndrome), alkali burns, trauma, inflammation (of any cause), toxic and nutritional deficiency states, and as a complication of wearing contact lenses.

Within particularly preferred embodiments of the invention, may be prepared for topical administration in saline (combined with any of the preservatives and antimicrobial agents commonly used in ocular preparations), and administered in eyedrop form. The solution or suspension may be prepared in its pure form and administered several times daily. Alternatively, anti-angiogenic compositions, prepared as described above, may also be administered directly to the cornea. Within preferred embodiments, the anti-angiogenic composition is prepared with a muco-adhesive polymer which binds to cornea. Within further embodiments, the anti-angiogenic factors or anti-angiogenic compositions may be utilized as an adjunct to conventional steroid therapy. Topical therapy may also be useful prophylactically in corneal lesions which are known to have a high probability of inducing an angiogenic response (such as chemical burns). In these instances the treatment, likely in combination with steroids, may be instituted immediately to help prevent subsequent complications.

Within other embodiments, the compounds described above may be injected directly into the corneal stroma by an ophthalmologist under microscopic guidance. The preferred site of injection may vary with the morphology of the individual lesion, but the goal of the administration would be to place the composition at the advancing front of the vasculature (i.e., interspersed between the blood vessels and the normal cornea). In most cases this would involve perilimbic corneal injection to "protect" the cornea from the advancing blood vessels. This method may also be utilized shortly

after a corneal insult in order to prophylactically prevent corneal neovascularization. In this situation the material could be injected in the perilimbic cornea interspersed between the corneal lesion and its undesired potential limbic blood supply. Such methods may also be utilized in a similar fashion to prevent capillary invasion of transplanted corneas. In a sustained-release form injections might only be required 2-3 times per year. A steroid could also be added to the injection solution to reduce inflammation resulting from the injection itself.

Within another aspect of the present invention, methods are provided for treating neovascular glaucoma, comprising the step of administering to a patient a therapeutically effective amount of a polynucleotide, polypeptide, antagonist and/or agonist to the eye, such that the formation of blood vessels is inhibited. In one embodiment, the compound may be administered topically to the eye in order to treat early forms of neovascular glaucoma. Within other embodiments, the compound may be implanted by injection into the region of the anterior chamber angle. Within other embodiments, the compound may also be placed in any location such that the compound is continuously released into the aqueous humor. Within another aspect of the present invention, methods are provided for treating proliferative diabetic retinopathy, comprising the step of administering to a patient a therapeutically effective amount of a polynucleotide, polypeptide, antagonist and/or agonist to the eyes, such that the formation of blood vessels is inhibited.

Within particularly preferred embodiments of the invention, proliferative diabetic retinopathy may be treated by injection into the aqueous humor or the vitreous, in order to increase the local concentration of the polynucleotide, polypeptide, antagonist and/or agonist in the retina. Preferably, this treatment should be initiated prior to the acquisition of severe disease requiring photocoagulation.

Within another aspect of the present invention, methods are provided for treating retrolental fibroplasia, comprising the step of administering to a patient a therapeutically effective amount of a polynucleotide, polypeptide. antagonist and/or agonist to the eye, such that the formation of blood vessels is inhibited. The

compound may be administered topically, via intravitreous injection and/or via intraocular implants.

Additionally, disorders which can be treated with the polynucleotides, polypeptides, agonists and/or agonists include, but are not limited to, hemangioma, arthritis, psoriasis, angiofibroma, atherosclerotic plaques, delayed wound healing, granulations, hemophilic joints, hypertrophic scars, nonunion fractures, Osler-Weber syndrome, pyogenic granuloma, scleroderma, trachoma, and vascular adhesions.

Moreover, disorders and/or states, which can be treated with be treated with the the polynucleotides, polypeptides, agonists and/or agonists include, but are not limited to, solid tumors, blood born tumors such as leukemias, tumor metastasis, Kaposi's sarcoma, benign tumors, for example hemangiomas, acoustic neuromas, neurofibromas. trachomas, and pyogenic granulomas, rheumatoid arthritis, psoriasis, ocular angiogenic diseases, for example, diabetic retinopathy, retinopathy of prematurity, macular degeneration, corneal graft rejection, neovascular glaucoma, retrolental fibroplasia, rubeosis, retinoblastoma, and uvietis, delayed wound healing, endometriosis. vascluogenesis, granulations, hypertrophic scars (keloids), nonunion fractures, scleroderma, trachoma, vascular adhesions, myocardial angiogenesis, coronary collaterals, cerebral collaterals, arteriovenous malformations, ischemic limb angiogenesis, Osler-Webber Syndrome, plaque neovascularization, telangiectasia, hemophiliac joints, angiofibroma fibromuscular dysplasia, wound granulation, Crohn's disease, atherosclerosis, birth control agent by preventing vascularization required for embryo implantation controlling menstruation, diseases that have angiogenesis as a pathologic consequence such as cat scratch disease (Rochele minalia quintosa), ulcers (Helicobacter pylori), Bartonellosis and bacillary angiomatosis.

In one aspect of the birth control method, an amount of the compound sufficient to block embryo implantation is administered before or after intercourse and fertilization have occurred, thus providing an effective method of birth control, possibly a "morning after" method. Polynucleotides, polypeptides, agonists and/or agonists may also be used in controlling menstruation or administered as either a

peritoneal lavage fluid or for peritoneal implantation in the treatment of endometriosis.

Polynucleotides, polypeptides, agonists and/or agonists of the present invention may be incorporated into surgical sutures in order to prevent stitch granulomas.

Polynucleotides, polypeptides, agonists and/or agonists may be utilized in a wide variety of surgical procedures. For example, within one aspect of the present invention a compositions (in the form of, for example, a spray or film) may be utilized to coat or spray an area prior to removal of a tumor, in order to isolate normal surrounding tissues from malignant tissue, and/or to prevent the spread of disease to surrounding tissues. Within other aspects of the present invention, compositions (e.g., in the form of a spray) may be delivered via endoscopic procedures in order to coat tumors, or inhibit angiogenesis in a desired locale. Within yet other aspects of the present invention, surgical meshes which have been coated with anti- angiogenic compositions of the present invention may be utilized in any procedure wherein a surgical mesh might be utilized. For example, within one embodiment of the invention a surgical mesh laden with an anti-angiogenic composition may be utilized during abdominal cancer resection surgery (e.g., subsequent to colon resection) in order to provide support to the structure, and to release an amount of the anti-angiogenic factor.

Within further aspects of the present invention, methods are provided for treating tumor excision sites, comprising administering a polynucleotide, polypeptide, agonist and/or agonist to the resection margins of a tumor subsequent to excision, such that the local recurrence of cancer and the formation of new blood vessels at the site is inhibited. Within one embodiment of the invention, the anti-angiogenic compound is administered directly to the tumor excision site (e.g., applied by swabbing, brushing or otherwise coating the resection margins of the tumor with the anti-angiogenic compound). Alternatively, the anti-angiogenic compounds may be incorporated into known surgical pastes prior to administration. Within particularly

preferred embodiments of the invention, the anti-angiogenic compounds are applied after hepatic resections for malignancy, and after neurosurgical operations.

Within one aspect of the present invention, polynucleotides, polypeptides, agonists and/or agonists may be administered to the resection margin of a wide variety of tumors, including for example, breast, colon, brain and hepatic tumors. For example, within one embodiment of the invention, anti-angiogenic compounds may be administered to the site of a neurological tumor subsequent to excision, such that the formation of new blood vessels at the site are inhibited.

The polynucleotides, polypeptides, agonists and/or agonists of the present invention may also be administered along with other anti-angiogenic factors. Representative examples of other anti-angiogenic factors include: Anti-Invasive Factor, retinoic acid and derivatives thereof, paclitaxel, Suramin, Tissue Inhibitor of Metalloproteinase-1, Tissue Inhibitor of Metalloproteinase-2, Plasminogen Activator Inhibitor-1, Plasminogen Activator Inhibitor-2, and various forms of the lighter "d group" transition metals.

Lighter "d group" transition metals include, for example, vanadium, molybdenum, tungsten, titanium, niobium, and tantalum species. Such transition metal species may form transition metal complexes. Suitable complexes of the above-mentioned transition metal species include oxo transition metal complexes.

Representative examples of vanadium complexes include oxo vanadium complexes such as vanadate and vanadyl complexes. Suitable vanadate complexes include metavanadate and orthovanadate complexes such as, for example, ammonium metavanadate, sodium metavanadate, and sodium orthovanadate. Suitable vanadyl complexes include, for example, vanadyl acetylacetonate and vanadyl sulfate including vanadyl sulfate hydrates such as vanadyl sulfate mono- and trihydrates.

Representative examples of tungsten and molybdenum complexes also include oxo complexes. Suitable oxo tungsten complexes include tungstate and tungsten oxide complexes. Suitable tungstate complexes include ammonium tungstate, calcium tungstate, sodium tungstate dihydrate, and tungstic acid. Suitable tungsten oxides include tungsten (IV) oxide and tungsten (VI) oxide. Suitable oxo

molybdenum complexes include molybdate, molybdenum oxide, and molybdenyl complexes. Suitable molybdate complexes include ammonium molybdate and its hydrates, sodium molybdate and its hydrates, and potassium molybdate and its hydrates. Suitable molybdenum oxides include molybdenum (VI) oxide, molybdenum (VI) oxide, and molybdic acid. Suitable molybdenyl complexes include, for example, molybdenyl acetylacetonate. Other suitable tungsten and molybdenum complexes include hydroxo derivatives derived from, for example, glycerol, tartaric acid, and sugars.

A wide variety of other anti-angiogenic factors may also be utilized within the context of the present invention. Representative examples include platelet factor 4; protamine sulphate; sulphated chitin derivatives (prepared from queen crab shells), (Murata et al., Cancer Res. 51:22-26, 1991); Sulphated Polysaccharide Peptidoglycan Complex (SP- PG) (the function of this compound may be enhanced by the presence of steroids such as estrogen, and tamoxifen citrate); Staurosporine; modulators of matrix metabolism, including for example, proline analogs, cishydroxyproline, d,L-3,4-dehydroproline, Thiaproline, alpha,alpha-dipyridyl, aminopropionitrile fumarate; 4-propyl-5-(4-pyridinyl)-2(3H)-oxazolone; Methotrexate; Mitoxantrone; Heparin; Interferons; 2 Macroglobulin-serum; ChIMP-3 (Pavloff et al., J. Bio. Chem. 267:17321-17326, 1992); Chymostatin (Tomkinson et al., Biochem J. 286:475-480, 1992); Cyclodextrin Tetradecasulfate; Eponemycin; Camptothecin; Fumagillin (Ingber et al., Nature 348:555-557, 1990); Gold Sodium Thiomalate ("GST"; Matsubara and Ziff, J. Clin. Invest. 79:1440-1446, 1987); anticollagenase-serum; alpha2-antiplasmin (Holmes et al., J. Biol. Chem. 262(4):1659-1664, 1987); Bisantrene (National Cancer Institute); Lobenzarit disodium (N-(2)-carboxyphenyl-4-chloroanthronilic acid disodium or "CCA"; Takeuchi et al., Agents Actions 36:312-316, 1992); Thalidomide; Angostatic steroid; AGM-1470; carboxynaminolmidazole; and metalloproteinase inhibitors such as BB94.

Diseases at the Cellular Level

Diseases associated with increased cell survival or the inhibition of apoptosis that could be treated or detected by polynucleotides or polypeptides, as well as antagonists or agonists of the present invention, include cancers (such as follicular lymphomas, carcinomas with p53 mutations, and hormone-dependent tumors, including, but not limited to colon cancer, cardiac tumors, pancreatic cancer, melanoma, retinoblastoma, glioblastoma, lung cancer, intestinal cancer, testicular cancer, stomach cancer, neuroblastoma, myxoma, myoma, lymphoma, endothelioma, osteoblastoma, osteoclastoma, osteosarcoma, chondrosarcoma, adenoma, breast cancer, prostate cancer, Kaposi's sarcoma and ovarian cancer); autoimmune disorders (such as, multiple sclerosis, Sjogren's syndrome. Hashimoto's thyroiditis, biliary cirrhosis, Behcet's disease, Crohn's disease, polymyositis, systemic lupus erythematosus and immune-related glomerulonephritis and rheumatoid arthritis) and viral infections (such as herpes viruses, pox viruses and adenoviruses), inflammation, graft v. host disease, acute graft rejection, and chronic graft rejection. In preferred embodiments, polynucleotides, polypeptides, and/or antagonists of the invention are used to inhibit growth, progression, and/or metasis of cancers, in particular those listed above.

Additional diseases or conditions associated with increased cell survival that could be treated or detected by polynucleotides or polypeptides, or agonists or antagonists of the present invention include, but are not limited to, progression, and/or metastases of malignancies and related disorders such as leukemia (including acute leukemias (e.g., acute lymphocytic leukemia, acute myelocytic leukemia (including myeloblastic, promyelocytic, myelomonocytic, monocytic, and erythroleukemia)) and chronic leukemias (e.g., chronic myelocytic (granulocytic) leukemia and chronic lymphocytic leukemia)), polycythemia vera, lymphomas (e.g., Hodgkin's disease and non-Hodgkin's disease), multiple myeloma, Waldenstrom's macroglobulinemia, heavy chain disease, and solid tumors including, but not limited to, sarcomas and carcinomas such as fibrosarcoma, myxosarcoma, liposarcoma, chondrosarcoma, osteogenic sarcoma, chordoma. angiosarcoma. endotheliosarcoma,

lymphangiosarcoma, lymphangioendotheliosarcoma, synovioma, mesothelioma, Ewing's tumor, leiomyosarcoma, rhabdomyosarcoma, colon carcinoma, pancreatic cancer, breast cancer, ovarian cancer, prostate cancer, squamous cell carcinoma, basal cell carcinoma, adenocarcinoma, sweat gland carcinoma, sebaceous gland carcinoma, papillary carcinoma, papillary adenocarcinomas, cystadenocarcinoma, medullary carcinoma, bronchogenic carcinoma, renal cell carcinoma, hepatoma, bile duct carcinoma, choriocarcinoma, seminoma, embryonal carcinoma, Wilm's tumor, cervical cancer, testicular tumor, lung carcinoma, small cell lung carcinoma, bladder carcinoma, epithelial carcinoma, glioma, astrocytoma, medulloblastoma, craniopharyngioma, ependymoma, pinealoma, hemangioblastoma, acoustic neuroma, oligodendroglioma, menangioma, melanoma, neuroblastoma, and retinoblastoma.

Diseases associated with increased apoptosis that could be treated or detected by polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, include AIDS; neurodegenerative disorders (such as Alzheimer's disease, Parkinson's disease, Amyotrophic lateral sclerosis, Retinitis pigmentosa, Cerebellar degeneration and brain tumor or prior associated disease); autoimmune disorders (such as, multiple sclerosis, Sjogren's syndrome, Hashimoto's thyroiditis, biliary cirrhosis, Behcet's disease, Crohn's disease, polymyositis, systemic lupus erythematosus and immune-related glomerulonephritis and rheumatoid arthritis) myelodysplastic syndromes (such as aplastic anemia), graft v. host disease, ischemic injury (such as that caused by myocardial infarction, stroke and reperfusion injury), liver injury (e.g., hepatitis related liver injury, ischemia/reperfusion injury, cholestosis (bile duct injury) and liver cancer); toxin-induced liver disease (such as that caused by alcohol), septic shock, cachexia and anorexia.

Wound Healing and Epithelial Cell Proliferation

In accordance with yet a further aspect of the present invention, there is provided a process for utilizing polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, for therapeutic purposes, for example, to stimulate epithelial cell proliferation and basal keratinocytes for the purpose of wound

healing, and to stimulate hair follicle production and healing of dermal wounds. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, may be clinically useful in stimulating wound healing including surgical wounds, excisional wounds, deep wounds involving damage of the dermis and epidermis, eye tissue wounds, dental tissue wounds, oral cavity wounds, diabetic ulcers, dermal ulcers, cubitus ulcers, arterial ulcers, venous stasis ulcers, burns resulting from heat exposure or chemicals, and other abnormal wound healing conditions such as uremia, malnutrition, vitamin deficiencies and complications associted with systemic treatment with steroids, radiation therapy and antineoplastic drugs and antimetabolites. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could be used to promote dermal reestablishment subsequent to dermal loss

Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could be used to increase the adherence of skin grafts to a wound bed and to stimulate re-epithelialization from the wound bed. The following are types of grafts that polynucleotides or polypeptides, agonists or antagonists of the present invention, could be used to increase adherence to a wound bed: autografts, artificial skin, allografts, autodermic graft, autoepdermic grafts, avacular grafts, Blair-Brown grafts, bone graft, brephoplastic grafts, cutis graft, delayed graft, dermic graft, epidermic graft, fascia graft, full thickness graft, heterologous graft, xenograft, homologous graft, hyperplastic graft, lamellar graft, mesh graft, mucosal graft, Ollier-Thiersch graft, omenpal graft, patch graft, pedicle graft, penetrating graft, split skin graft, thick split graft. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, can be used to promote skin strength and to improve the appearance of aged skin.

It is believed that polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, will also produce changes in hepatocyte proliferation, and epithelial cell proliferation in the lung, breast, pancreas, stomach, small intesting, and large intestine. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could promote proliferation of

epithelial cells such as sebocytes, hair follicles, hepatocytes, type II pneumocytes, mucin-producing goblet cells, and other epithelial cells and their progenitors contained within the skin, lung, liver, and gastrointestinal tract. Polynucleotides or polypeptides, agonists or antagonists of the present invention, may promote proliferation of endothelial cells, keratinocytes, and basal keratinocytes.

Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could also be used to reduce the side effects of gut toxicity that result from radiation, chemotherapy treatments or viral infections. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, may have a cytoprotective effect on the small intestine mucosa. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, may also stimulate healing of mucositis (mouth ulcers) that result from chemotherapy and viral infections.

Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could further be used in full regeneration of skin in full and partial thickness skin defects, including burns, (i.e., repopulation of hair follicles, sweat glands, and sebaceous glands), treatment of other skin defects such as psoriasis. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could be used to treat epidermolysis bullosa, a defect in adherence of the epidermis to the underlying dermis which results in frequent, open and painful blisters by accelerating reepithelialization of these lesions. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could also be used to treat gastric and doudenal ulcers and help heal by scar formation of the mucosal lining and regeneration of glandular mucosa and duodenal mucosal lining more rapidly. Inflamamatory bowel diseases, such as Crohn's disease and ulcerative colitis, are diseases which result in destruction of the mucosal surface of the small or large intestine, respectively. Thus, polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could be used to promote the resurfacing of the mucosal surface to aid more rapid healing and to prevent progression of inflammatory bowel disease. Treatment with polynucleotides or polypeptides, agonists or antagonists of the present invention, is expected to have a significant effect on the

production of mucus throughout the gastrointestinal tract and could be used to protect the intestinal mucosa from injurious substances that are ingested or following surgery. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could be used to treat diseases associate with the under expression.

Moreover, polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could be used to prevent and heal damage to the lungs due to various pathological states. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, which could stimulate proliferation and differentiation and promote the repair of alveoli and brochiolar epithelium to prevent or treat acute or chronic lung damage. For example, emphysema, which results in the progressive loss of aveoli, and inhalation injuries, i.e., resulting from smoke inhalation and burns, that cause necrosis of the bronchiolar epithelium and alveoli could be effectively treated using polynucleotides or polypeptides, agonists or antagonists of the present invention. Also, polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could be used to stimulate the proliferation of and differentiation of type II pneumocytes, which may help treat or prevent disease such as hyaline membrane diseases, such as infant respiratory distress syndrome and bronchopulmonary displasia, in premature infants.

Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could stimulate the proliferation and differentiation of hepatocytes and, thus, could be used to alleviate or treat liver diseases and pathologies such as fulminant liver failure caused by cirrhosis, liver damage caused by viral hepatitis and toxic substances (i.e., acetaminophen, carbon tetraholoride and other hepatotoxins known in the art).

In addition, polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could be used treat or prevent the onset of diabetes mellitus. In patients with newly diagnosed Types I and II diabetes, where some islet cell function remains, polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could be used to maintain the islet function so as to alleviate, delay or prevent permanent manifestation of the disease. Also. polynucleotides or

polypeptides, as well as agonists or antagonists of the present invention, could be used as an auxiliary in islet cell transplantation to improve or promote islet cell function.

Neurological Diseases

In accordance with yet a further aspect of the present invention, there is provided a process for utilizing polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, for therapeutic purposes, for example, to stimulate neurological cell proliferation and/or differentiation. Therefore, polynucleotides, polypeptides, agonists and/or antagonists of the invention may be used to treat and/or detect neurologic diseases. Moreover, polynucleotides or polypeptides, or agonists or antagonists of the invention, can be used as a marker or detector of a particular nervous system disease or disorder.

Examples of neurologic diseases which can be treated or detected with polynucleotides, polypeptides, agonists, and/or antagonists of the present invention include brain diseases, such as metabolic brain diseases which includes phenylketonuria such as maternal phenylketonuria, pyruvate carboxylase deficiency, pyruvate dehydrogenase complex deficiency, Wernicke's Encephalopathy, brain edema, brain neoplasms such as cerebellar neoplasms which include infratentorial neoplasms, cerebral ventricle neoplasms such as choroid plexus neoplasms, hypothalamic neoplasms, supratentorial neoplasms, canavan disease, cerebellar diseases such as cerebellar ataxia which include spinocerebellar degeneration such as ataxia telangiectasia, cerebellar dyssynergia, Friederich's Ataxia, Machado-Joseph Disease, olivopontocerebellar atrophy, cerebellar neoplasms such as infratentorial neoplasms, diffuse cerebral sclerosis such as encephalitis periaxialis, globoid cell leukodystrophy, metachromatic leukodystrophy and subacute sclerosing panencephalitis, cerebrovascular disorders (such as carotid artery diseases which include carotid artery thrombosis, carotid stenosis and Moyamoya Disease, cerebral amyloid angiopathy, cerebral aneurysm, cerebral anoxia, cerebral arteriosclerosis, cerebral arteriovenous malformations, cerebral artery diseases. cerebral embolism and

thrombosis such as carotid artery thrombosis, sinus thrombosis and Wallenberg's Syndrome, cerebral hemorrhage such as epidural hematoma, subdural hematoma and subarachnoid hemorrhage, cerebral infarction, cerebral ischemia such as transient cerebral ischemia, Subclavian Steal Syndrome and vertebrobasilar insufficiency, vascular dementia such as multi-infarct dementia, periventricular leukomalacia, vascular headache such as cluster headache, migraine, dementia such as AIDS Dementia Complex, presenile dementia such as Alzheimer's Disease and Creutzfeldt-Jakob Syndrome, senile dementia such as Alzheimer's Disease and progressive supranuclear palsy, vascular dementia such as multi-infarct dementia, encephalitis which include encephalitis periaxialis, viral encephalitis such as epidemic encephalitis, Japanese Encephalitis, St. Louis Encephalitis, tick-borne encephalitis and West Nile Fever, acute disseminated encephalomyelitis, meningoencephalitis such as uveomeningoencephalitic syndrome, Postencephalitic Parkinson Disease and subacute sclerosing panencephalitis, encephalomalacia such as periventricular leukomalacia, epilepsy such as generalized epilepsy which includes infantile spasms, absence epilepsy, myoclonic epilepsy which includes MERRF Syndrome, tonic-clonic epilepsy, partial epilepsy such as complex partial epilepsy, frontal lobe epilepsy and temporal lobe epilepsy, post-traumatic epilepsy, status epilepticus such as Epilepsia Partialis Continua, Hallervorden-Spatz Syndrome, hydrocephalus such as Dandy-Walker Syndrome and normal pressure hydrocephalus, hypothalamic diseases such as hypothalamic neoplasms, cerebral malaria, narcolepsy which includes cataplexy, bulbar poliomyelitis, cerebri pseudotumor, Rett Syndrome, Reye's Syndrome, thalamic diseases, cerebral toxoplasmosis, intracranial tuberculoma and Zellweger Syndrome, central nervous system infections such as AIDS Dementia Complex, Brain Abscess, subdural empyema, encephalomyelitis such as Equine Encephalomyelitis, Venezuelan Equine Encephalomyelitis, Necrotizing Hemorrhagic Encephalomyelitis, Visna, cerebral malaria, meningitis such as arachnoiditis, aseptic meningtitis such as viral meningtitis which includes lymphocytic choriomeningitis. Bacterial meningtitis which includes Haemophilus Meningtitis, Listeria Meningtitis, Meningococcal Meningtitis such as Waterhouse-Friderichsen Syndrome,

Pneumococcal Meningtitis and meningeal tuberculosis, fungal meningitis such as Cryptococcal Meningtitis, subdural effusion, meningoencephalitis such as uvemeningoencephalitic syndrome, myelitis such as transverse myelitis, neurosyphilis such as tabes dorsalis, poliomyelitis which includes bulbar poliomyelitis and postpoliomyelitis syndrome, prion diseases (such as Creutzfeldt-Jakob Syndrome, Bovine Spongiform Encephalopathy, Gerstmann-Straussler Syndrome, Kuru, Scrapie) cerebral toxoplasmosis, central nervous system neoplasms such as brain neoplasms that include cerebellear neoplasms such as infratentorial neoplasms, cerebral ventricle neoplasms such as choroid plexus neoplasms, hypothalamic neoplasms and supratentorial neoplasms, meningeal neoplasms, spinal cord neoplasms which include epidural neoplasms, demyelinating diseases such as Canavan Diseases, diffuse cerebral sceloris which includes adrenoleukodystrophy, encephalitis periaxialis, globoid cell leukodystrophy, diffuse cerebral sclerosis such as metachromatic leukodystrophy, allergic encephalomyelitis, necrotizing hemorrhagic encephalomyelitis, progressive multifocal leukoencephalopathy, multiple sclerosis, central pontine myelinolysis, transverse myelitis, neuromyelitis optica, Scrapie, Swayback, Chronic Fatigue Syndrome, Visna, High Pressure Nervous Syndrome, Meningism, spinal cord diseases such as amyotonia congenita, amyotrophic lateral sclerosis, spinal muscular atrophy such as Werdnig-Hoffmann Disease, spinal cord compression, spinal cord neoplasms such as epidural neoplasms, syringomyelia, Tabes Dorsalis, Stiff-Man Syndrome, mental retardation such as Angelman Syndrome, Cri-du-Chat Syndrome, De Lange's Syndrome, Down Syndrome, Gangliosidoses such as gangliosidoses G(M1), Sandhoff Disease, Tay-Sachs Disease, Hartnup Disease, homocystinuria, Laurence-Moon- Biedl Syndrome, Lesch-Nyhan Syndrome, Maple Syrup Urine Disease, mucolipidosis such as fucosidosis. neuronal ceroid-lipofuscinosis, oculocerebrorenal syndrome, phenylketonuria such as maternal phenylketonuria, Prader-Willi Syndrome, Rett Syndrome, Rubinstein-Taybi Syndrome, Tuberous Sclerosis, WAGR Syndrome, nervous system abnormalities such as holoprosencephaly, neural tube defects such as anencephaly which includes hydrangencephaly, Arnold-Chairi Deformity. encephalocele. meningocele,

meningomyelocele, spinal dysraphism such as spina bifida cystica and spina bifida occulta, hereditary motor and sensory neuropathies which include Charcot-Marie Disease, Hereditary optic atrophy, Refsum's Disease, hereditary spastic paraplegia, Werdnig-Hoffmann Disease, Hereditary Sensory and Autonomic Neuropathies such as Congenital Analgesia and Familial Dysautonomia, Neurologic manifestations (such as agnosia that include Gerstmann's Syndrome, Amnesia such as retrograde amnesia, apraxia, neurogenic bladder, cataplexy, communicative disorders such as hearing disorders that includes deafness, partial hearing loss, loudness recruitment and tinnitus, language disorders such as aphasia which include agraphia, anomia, broca aphasia, and Wernicke Aphasia, Dyslexia such as Acquired Dyslexia, language development disorders, speech disorders such as aphasia which includes anomia, broca aphasia and Wernicke Aphasia, articulation disorders, communicative disorders such as speech disorders which include dysarthria, echolalia, mutism and stuttering, voice disorders such as aphonia and hoarseness, decerebrate state, delirium, fasciculation, hallucinations, meningism, movement disorders such as angelman syndrome, ataxia, athetosis, chorea, dystonia, hypokinesia, muscle hypotonia, myoclonus, tic, torticollis and tremor, muscle hypertonia such as muscle rigidity such as stiff-man syndrome, muscle spasticity, paralysis such as facial paralysis which includes Herpes Zoster Oticus, Gastroparesis, Hemiplegia, ophthalmoplegia such as diplopia, Duane's Syndrome, Horner's Syndrome, Chronic progressive external ophthalmoplegia such as Kearns Syndrome, Bulbar Paralysis, Tropical Spastic Paraparesis, Paraplegia such as Brown-Sequard Syndrome, quadriplegia, respiratory paralysis and vocal cord paralysis, paresis, phantom limb, taste disorders such as ageusia and dysgeusia, vision disorders such as amblyopia, blindness, color vision defects, diplopia, hemianopsia, scotoma and subnormal vision, sleep disorders such as hypersomnia which includes Kleine-Levin Syndrome, insomnia, and somnambulism, spasm such as trismus, unconsciousness such as coma, persistent vegetative state and syncope and vertigo, neuromuscular diseases such as amyotonia congenita, amyotrophic lateral sclerosis, Lambert-Eaton Myasthenic Syndrome, motor neuron disease, muscular atrophy such as spinal muscular atrophy, Charcot-Marie Disease

and Werdnig-Hoffmann Disease, Postpoliomyelitis Syndrome. Muscular Dystrophy, Myasthenia Gravis, Myotonia Atrophica. Myotonia Confenita. Nemaline Myopathy, Familial Periodic Paralysis, Multiplex Paramyloclonus, Tropical Spastic Paraparesis and Stiff-Man Syndrome, peripheral nervous system diseases such as acrodynia, amyloid neuropathies, autonomic nervous system diseases such as Adie's Syndrome, Barre-Lieou Syndrome. Familial Dysautonomia, Horner's Syndrome, Reflex Sympathetic Dystrophy and Shy-Drager Syndrome, Cranial Nerve Diseases such as Acoustic Nerve Diseases such as Acoustic Neuroma which includes Neurofibromatosis 2. Facial Nerve Diseases such as Facial Neuralgia,Melkersson-Rosenthal Syndrome. ocular motility disorders which includes amblyopia, nystagmus, oculomotor nerve paralysis. ophthalmoplegia such as Duane's Syndrome, Horner's Syndrome, Chronic Progressive External Ophthalmoplegia which includes Kearns Syndrome. Strabismus such as Esotropia and Exotropia, Oculomotor Nerve Paralysis, Optic Nerve Diseases such as Optic Atrophy which includes Hereditary Optic Atrophy, Optic Disk Drusen, Optic Neuritis such as Neuromyelitis Optica, Papilledema, Trigeminal Neuralgia, Vocal Cord Paralysis, Demyelinating Diseases such as Neuromyelitis Optica and Swayback, Diabetic neuropathies such as diabetic foot, nerve compression syndromes such as carpal tunnel syndrome, tarsal tunnel syndrome, thoracic outlet syndrome such as cervical rib syndrome, ulnar nerve compression syndrome, neuralgia such as causalgia, cervico-brachial neuralgia, facial neuralgia and trigeminal neuralgia, neuritis such as experimental allergic neuritis, optic neuritis, polyneuritis, polyradiculoneuritis and radiculities such as polyradiculitis, hereditary motor and sensory neuropathies such as Charcot-Marie Disease, Hereditary Optic Atrophy, Refsum's Disease, Hereditary Spastic Paraplegia and Werdnig-Hoffmann Disease, Hereditary Sensory and Autonomic Neuropathies which include Congenital Analgesia and Familial Dysautonomia, POEMS Syndrome, Sciatica, Gustatory Sweating and Tetany).

Infectious Disease

Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention can be used to treat or detect infectious agents. For example, by increasing the immune response, particularly increasing the proliferation and differentiation of B and/or T cells, infectious diseases may be treated. The immune response may be increased by either enhancing an existing immune response, or by initiating a new immune response. Alternatively, polynucleotides or polypeptides, as well as agonists or antagonists of the present invention may also directly inhibit the infectious agent, without necessarily eliciting an immune response.

Viruses are one example of an infectious agent that can cause disease or symptoms that can be treated or detected by a polynucleotide or polypeptide and/or agonist or antagonist of the present invention. Examples of viruses, include, but are not limited to Examples of viruses, include, but are not limited to the following DNA and RNA viruses and viral families: Arbovirus, Adenoviridae, Arenaviridae, Arterivirus, Birnaviridae, Bunyaviridae, Caliciviridae, Circoviridae, Coronaviridae, Dengue, EBV, HIV, Flaviviridae, Hepadnaviridae (Hepatitis), Herpesviridae (such as, Cytomegalovirus, Herpes Simplex, Herpes Zoster), Mononegavirus (e.g., Paramyxoviridae, Morbillivirus, Rhabdoviridae), Orthomyxoviridae (e.g., Influenza A, Influenza B, and parainfluenza), Papiloma virus, Papovaviridae, Parvoviridae, Picornaviridae, Poxviridae (such as Smallpox or Vaccinia), Reoviridae (e.g., Rotavirus), Retroviridae (HTLV-I, HTLV-II, Lentivirus), and Togaviridae (e.g., Rubivirus). Viruses falling within these families can cause a variety of diseases or symptoms, including, but not limited to: arthritis, bronchiollitis, respiratory syncytial virus, encephalitis, eye infections (e.g., conjunctivitis, keratitis), chronic fatigue syndrome, hepatitis (A, B, C, E, Chronic Active, Delta), Japanese B encephalitis, Junin, Chikungunya, Rift Valley fever, yellow fever, meningitis, opportunistic infections (e.g., AIDS), pneumonia, Burkitt's Lymphoma, chickenpox, hemorrhagic fever, Measles, Mumps, Parainfluenza, Rabies, the common cold, Polio, leukemia, Rubella, sexually transmitted diseases, skin diseases (e.g., Kaposi's, warts), and viremia. polynucleotides or polypeptides, or agonists or antagonists of the invention, can be used to treat or detect any of these symptoms or diseases. In specific

embodiments, polynucleotides, polypeptides, or agonists or antagonists of the invention are used to treat: meningitis, Dengue, EBV, and/or hepatitis (e.g., hepatitis B). In an additional specific embodiment polynucleotides, polypeptides, or agonists or antagonists of the invention are used to treat patients nonresponsive to one or more other commercially available hepatitis vaccines. In a further specific embodiment polynucleotides, polypeptides, or agonists or antagonists of the invention are used to treat AIDS.

Similarly, bacterial or fungal agents that can cause disease or symptoms and that can be treated or detected by a polynucleotide or polypeptide and/or agonist or antagonist of the present invention include, but not limited to, include, but not limited to, the following Gram-Negative and Gram-positive bacteria and bacterial families and fungi: Actinomycetales (e.g., Corynebacterium, Mycobacterium, Norcardia), Cryptococcus neoformans, Aspergillosis, Bacillaceae (e.g., Anthrax, Clostridium), Bacteroidaceae, Blastomycosis, Bordetella, Borrelia (e.g., Borrelia burgdorferi, Brucellosis, Candidiasis, Campylobacter, Coccidioidomycosis, Cryptococcosis, Dermatocycoses, E. coli (e.g., Enterotoxigenic E. coli and Enterohemorrhagic E. coli), Enterobacteriaceae (Klebsiella, Salmonella (e.g., Salmonella typhi, and Salmonella paratyphi), Serratia, Yersinia), Erysipelothrix, Helicobacter, Legionellosis, Leptospirosis, Listeria, Mycoplasmatales, Mycobacterium leprae, Vibrio cholerae, Neisseriaceae (e.g., Acinetobacter, Gonorrhea, Menigococcal), Meisseria meningitidis, Pasteurellacea Infections (e.g., Actinobacillus, Heamophilus (e.g., Heamophilus influenza type B), Pasteurella), Pseudomonas, Rickettsiaceae, Chlamydiaceae, Syphilis, Shigella spp., Staphylococcal, Meningiococcal, Pneumococcal and Streptococcal (e.g., Streptococcus pneumoniae and Group B Streptococcus). These bacterial or fungal families can cause the following diseases or symptoms, including, but not limited to: bacteremia, endocarditis, eye infections (conjunctivitis, tuberculosis, uveitis), gingivitis, opportunistic infections (e.g., AIDS related infections), paronychia, prosthesis-related infections, Reiter's Disease, respiratory tract infections, such as Whooping Cough or Empyema, sepsis, Lyme Disease, Cat-Scratch Disease, Dysentery, Paratyphoid Fever, food poisoning,

Typhoid, pneumonia, Gonorrhea. meningitis (e.g., mengitis types A and B), Chlamydia, Syphilis. Diphtheria, Leprosy, Paratuberculosis. Tuberculosis. Lupus, Botulism, gangrene. tetanus, impetigo, Rheumatic Fever, Scarlet Fever. sexually transmitted diseases, skin diseases (e.g., cellulitis, dermatocycoses), toxemia. urinary tract infections, wound infections. Polynucleotides or polypeptides, agonists or antagonists of the invention, can be used to treat or detect any of these symptoms or diseases. In specific embodiments, Ppolynucleotides, polypeptides, agonists or antagonists of the invention are used to treat: tetanus, Diptheria, botulism. and/or meningitis type B.

Moreover, parasitic agents causing disease or symptoms that can be treated or detected by a polynucleotide or polypeptide and/or agonist or antagonist of the present invention include, but not limited to, the following families or class: Amebiasis, Babesiosis, Coccidiosis, Cryptosporidiosis, Dientamoebiasis, Dourine, Ectoparasitic, Giardiasis, Helminthiasis, Leishmaniasis, Theileriasis, Toxoplasmosis, Trypanosomiasis, and Trichomonas and Sporozoans (e.g., Plasmodium virax, Plasmodium falciparium, Plasmodium malariae and Plasmodium ovale). These parasites can cause a variety of diseases or symptoms, including, but not limited to: Scabies, Trombiculiasis, eye infections, intestinal disease (e.g., dysentery, giardiasis), liver disease. lung disease, opportunistic infections (e.g., AIDS related), malaria, pregnancy complications. and toxoplasmosis. polynucleotides or polypeptides, or agonists or antagonists of the invention, can be used to treat or detect any of these symptoms or diseases.

Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention of the present invention could either be by administering an effective amount of a polypeptide to the patient, or by removing cells from the patient. supplying the cells with a polynucleotide of the present invention, and returning the engineered cells to the patient (ex vivo therapy). Moreover, the polypeptide or polynucleotide of the present invention can be used as an antigen in a vaccine to raise an immune response against infectious disease.

Regeneration

Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention can be used to differentiate, proliferate, and attract cells, leading to the regeneration of tissues. (See, Science 276:59-87 (1997).) The regeneration of tissues could be used to repair, replace, or protect tissue damaged by congenital defects, trauma (wounds, burns, incisions, or ulcers), age, disease (e.g. osteoporosis, osteocarthritis, periodontal disease, liver failure), surgery, including cosmetic plastic surgery, fibrosis, reperfusion injury, or systemic cytokine damage.

Tissues that could be regenerated using the present invention include organs (e.g., pancreas, liver, intestine, kidney, skin, endothelium), muscle (smooth, skeletal or cardiac), vasculature (including vascular and lymphatics), nervous, hematopoietic, and skeletal (bone, cartilage, tendon, and ligament) tissue. Preferably, regeneration occurs without or decreased scarring. Regeneration also may include angiogenesis.

Moreover, polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, may increase regeneration of tissues difficult to heal. For example, increased tendon/ligament regeneration would quicken recovery time after damage. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention could also be used prophylactically in an effort to avoid damage. Specific diseases that could be treated include of tendinitis, carpal tunnel syndrome, and other tendon or ligament defects. A further example of tissue regeneration of non-healing wounds includes pressure ulcers, ulcers associatedwith vascular insufficiency, surgical, and traumatic wounds.

Similarly, nerve and brain tissue could also be regenerated by using polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, to proliferate and differentiate nerve cells. Diseases that could be treated using this method include central and peripheral nervous system diseases, neuropathies, or mechanical and traumatic disorders (e.g., spinal cord disorders, head trauma, cerebrovascular disease, and stoke). Specifically, diseases associated with peripheral nerve injuries, peripheral neuropathy (e.g., resulting from chemotherapy or other medical therapies), localized neuropathies, and central nervous system diseases

(e.g., Alzheimer's disease, Parkinson's disease, Huntington's disease, amyotrophic lateral sclerosis, and Shy-Drager syndrome), could all be treated using the polynucleotides or polypeptides, as well as agonists or antagonists of the present invention.

Chemotaxis

Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention may have chemotaxis activity. A chemotaxic molecule attracts or mobilizes cells (e.g., monocytes, fibroblasts, neutrophils, T-cells, mast cells, eosinophils, epithelial and/or endothelial cells) to a particular site in the body, such as inflammation, infection, or site of hyperproliferation. The mobilized cells can then fight off and/or heal the particular trauma or abnormality.

Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention may increase chemotaxic activity of particular cells. These chemotactic molecules can then be used to treat inflammation, infection, hyperproliferative disorders, or any immune system disorder by increasing the number of cells targeted to a particular location in the body. For example, chemotaxic molecules can be used to treat wounds and other trauma to tissues by attracting immune cells to the injured location. Chemotactic molecules of the present invention can also attract fibroblasts, which can be used to treat wounds.

It is also contemplated that polynucleotides or polypeptides, as well as agonists or antagonists of the present invention may inhibit chemotactic activity. These molecules could also be used to treat disorders. Thus, polynucleotides or polypeptides, as well as agonists or antagonists of the present invention could be used as an inhibitor of chemotaxis.

Binding Activity

A polypeptide of the present invention may be used to screen for molecules that bind to the polypeptide or for molecules to which the polypeptide binds. The binding of the polypeptide and the molecule may activate (agonist), increase, inhibit

(antagonist), or decrease activity of the polypeptide or the molecule bound. Examples of such molecules include antibodies, oligonucleotides, proteins (e.g., receptors),or small molecules.

Preferably, the molecule is closely related to the natural ligand of the polypeptide, e.g., a fragment of the ligand, or a natural substrate, a ligand, a structural or functional mimetic. (See, Coligan et al., Current Protocols in Immunology 1(2):Chapter 5 (1991).) Similarly, the molecule can be closely related to the natural receptor to which the polypeptide binds, or at least, a fragment of the receptor capable of being bound by the polypeptide (e.g., active site). In either case, the molecule can be rationally designed using known techniques.

Preferably, the screening for these molecules involves producing appropriate cells which express the polypeptide. Preferred cells include cells from mammals, yeast, Drosophila, or *E. coli*. Cells expressing the polypeptide (or cell membrane containing the expressed polypeptide) are then preferably contacted with a test compound potentially containing the molecule to observe binding, stimulation, or inhibition of activity of either the polypeptide or the molecule.

The assay may simply test binding of a candidate compound to the polypeptide, wherein binding is detected by a label, or in an assay involving competition with a labeled competitor. Further, the assay may test whether the candidate compound results in a signal generated by binding to the polypeptide.

Alternatively, the assay can be carried out using cell-free preparations, polypeptide/molecule affixed to a solid support, chemical libraries, or natural product mixtures. The assay may also simply comprise the steps of mixing a candidate compound with a solution containing a polypeptide, measuring polypeptide/molecule activity or binding, and comparing the polypeptide/molecule activity or binding to a standard.

Preferably, an ELISA assay can measure polypeptide level or activity in a sample (e.g., biological sample) using a monoclonal or polyclonal antibody. The antibody can measure polypeptide level or activity by either binding, directly or indirectly, to the polypeptide or by competing with the polypeptide for a substrate.

Additionally, the receptor to which the polypeptide of the present invention binds can be identified by numerous methods known to those of skill in the art, for example, ligand panning and FACS sorting (Coligan. et al., Current Protocols in Immun., 1(2), Chapter 5, (1991)). For example, expression cloning is employed wherein polyadenylated RNA is prepared from a cell responsive to the polypeptides, for example, NIH3T3 cells which are known to contain multiple receptors for the FGF family proteins, and SC-3 cells, and a cDNA library created from this RNA is divided into pools and used to transfect COS cells or other cells that are not responsive to the polypeptides. Transfected cells which are grown on glass slides are exposed to the polypeptide of the present invention. after they have been labelled. The polypeptides can be labeled by a variety of means including iodination or inclusion of a recognition site for a site-specific protein kinase.

Following fixation and incubation, the slides are subjected to auto-radiographic analysis. Positive pools are identified and sub-pools are prepared and re-transfected using an iterative sub-pooling and re-screening process, eventually yielding a single clones that encodes the putative receptor.

As an alternative approach for receptor identification. the labeled polypeptides can be photoaffinity linked with cell membrane or extract preparations that express the receptor molecule. Cross-linked material is resolved by PAGE analysis and exposed to X-ray film. The labeled complex containing the receptors of the polypeptides can be excised, resolved into peptide fragments, and subjected to protein microsequencing. The amino acid sequence obtained from microsequencing would be used to design a set of degenerate oligonucleotide probes to screen a cDNA library to identify the genes encoding the putative receptors.

Moreover, the techniques of gene-shuffling, motif-shuffling, exon-shuffling, and/or codon-shuffling (collectively referred to as "DNA shuffling") may be employed to modulate the activities of the polypeptide of the present invention thereby effectively generating agonists and antagonists of the polypeptide of the present invention. *See generally,* U.S. Patent Nos. 5,605,793, 5,811,238, 5,830,721, 5,834,252, and 5,837,458. and Patten. P. A., *et al., Curr. Opinion Biotechnol.* 8:724-

33 (1997); Harayama. S. *Trends Biotechnol.* 16(2):76-82 (1998); Hansson. L. O., *et al.*, *J. Mol. Biol.* 287:265-76 (1999); and Lorenzo, M. M. and Blasco, R. *Biotechniques* 24(2):308-13 (1998) (each of these patents and publications are hereby incorporated by reference). In one embodiment, alteration of polynucleotides and corresponding polypeptides may be achieved by DNA shuffling. DNA shuffling involves the assembly of two or more DNA segments into a desired molecule by homologous. or site-specific, recombination. In another embodiment, polynucleotides and corresponding polypeptides may be alterred by being subjected to random mutagenesis by error-prone PCR, random nucleotide insertion or other methods prior to recombination. In another embodiment, one or more components, motifs, sections, parts, domains, fragments, etc., of the polypeptide of the present invention may be recombined with one or more components. motifs, sections, parts, domains, fragments. etc. of one or more heterologous molecules. In preferred embodiments, the heterologous molecules are family members. In further preferred embodiments, the heterologous molecule is a growth factor such as, for example, platelet-derived growth factor (PDGF), insulin-like growth factor (IGF-I), transforming growth factor (TGF)-alpha, epidermal growth factor (EGF), fibroblast growth factor (FGF), TGF-beta, bone morphogenetic protein (BMP)-2, BMP-4, BMP-5, BMP-6, BMP-7, activins A and B, decapentaplegic(dpp), 60A, OP-2, dorsalin, growth differentiation factors (GDFs), nodal, MIS, inhibin-alpha, TGF-beta1, TGF-beta2, TGF-beta3, TGF-beta5, and glial-derived neurotrophic factor (GDNF).

Other preferred fragments are biologically active fragments of the polypeptide of the present invention. Biologically active fragments are those exhibiting activity similar, but not necessarily identical, to an activity of the polypeptide of the present invention. The biological activity of the fragments may include an improved desired activity, or a decreased undesirable activity.

Additionally, this invention provides a method of screening compounds to identify those which modulate the action of the polypeptide of the present invention. An example of such an assay comprises combining a mammalian fibroblast cell, a the polypeptide of the present invention, the compound to be screened and ^{3}[H]

thymidine under cell culture conditions where the fibroblast cell would normally proliferate. A control assay may be performed in the absence of the compound to be screened and compared to the amount of fibroblast proliferation in the presence of the compound to determine if the compound stimulates proliferation by determining the uptake of ^{3}[H] thymidine in each case. The amount of fibroblast cell proliferation is measured by liquid scintillation chromatography which measures the incorporation of ^{3}[H] thymidine. Both agonist and antagonist compounds may be identified by this procedure.

In another method, a mammalian cell or membrane preparation expressing a receptor for a polypeptide of the present invention is incubated with a labeled polypeptide of the present invention in the presence of the compound. The ability of the compound to enhance or block this interaction could then be measured. Alternatively, the response of a known second messenger system following interaction of a compound to be screened and the receptor is measured and the ability of the compound to bind to the receptor and elicit a second messenger response is measured to determine if the compound is a potential agonist or antagonist. Such second messenger systems include but are not limited to, cAMP guanylate cyclase, ion channels or phosphoinositide hydrolysis.

All of these above assays can be used as diagnostic or prognostic markers. The molecules discovered using these assays can be used to treat disease or to bring about a particular result in a patient (e.g., blood vessel growth) by activating or inhibiting the polypeptide/molecule. Moreover, the assays can discover agents which may inhibit or enhance the production of the polypeptides of the invention from suitably manipulated cells or tissues.

Therefore, the invention includes a method of identifying compounds which bind to a polypeptide of the invention comprising the steps of: (a) incubating a candidate binding compound with a polypeptide of the present invention; and (b) determining if binding has occurred. Moreover, the invention includes a method of identifying agonists/antagonists comprising the steps of: (a) incubating a candidate compound with a polypeptide of the present invention, (b) assaying a biological

activity, and (b) determining if a biological activity of the polypeptide has been altered.

Targeted Delivery

In another embodiment, the invention provides a method of delivering compositions to targeted cells expressing a receptor for a polypeptide of the invention, or cells expressing a cell bound form of a polypeptide of the invention.

As discussed herein, polypeptides or antibodies of the invention may be associated with heterologous polypeptides, heterologous nucleic acids, toxins, or prodrugs via hydrophobic, hydrophilic, ionic and/or covalent interactions. In one embodiment, the invention provides a method for the specific delivery of compositions of the invention to cells by administering polypeptides of the invention (including antibodies) that are associated with heterologous polypeptides or nucleic acids. In one example, the invention provides a method for delivering a therapeutic protein into the targeted cell. In another example, the invention provides a method for delivering a single stranded nucleic acid (e.g., antisense or ribozymes) or double stranded nucleic acid (e.g., DNA that can integrate into the cell's genome or replicate episomally and that can be transcribed) into the targeted cell.

In another embodiment, the invention provides a method for the specific destruction of cells (e.g., the destruction of tumor cells) by administering polypeptides of the invention (e.g., polypeptides of the invention or antibodies of the invention) in association with toxins or cytotoxic prodrugs.

By "toxin" is meant compounds that bind and activate endogenous cytotoxic effector systems, radioisotopes, holotoxins, modified toxins, catalytic subunits of toxins, or any molecules or enzymes not normally present in or on the surface of a cell that under defined conditions cause the cell's death. Toxins that may be used according to the methods of the invention include, but are not limited to, radioisotopes known in the art, compounds such as, for example, antibodies (or complement fixing containing portions thereof) that bind an inherent or induced endogenous cytotoxic effector system, thymidine kinase, endonuclease, RNAse, alpha

toxin, ricin, abrin, *Pseudomonas* exotoxin A, diphtheria toxin, saporin, momordin, gelonin, pokeweed antiviral protein, alpha-sarcin and cholera toxin. By "cytotoxic prodrug" is meant a non-toxic compound that is converted by an enzyme, normally present in the cell, into a cytotoxic compound. Cytotoxic prodrugs that may be used according to the methods of the invention include, but are not limited to, glutamyl derivatives of benzoic acid mustard alkylating agent, phosphate derivatives of etoposide or mitomycin C, cytosine arabinoside, daunorubisin, and phenoxyacetamide derivatives of doxorubicin.

Drug Screening

Further contemplated is the use of the polypeptides of the present invention, or the polynucleotides encoding these polypeptides, to screen for molecules which modify the activities of the polypeptides of the present invention. Such a method would include contacting the polypeptide of the present invention with a selected compound(s) suspected of having antagonist or agonist activity, and assaying the activity of these polypeptides following binding.

This invention is particularly useful for screening therapeutic compounds by using the polypeptides of the present invention, or binding fragments thereof, in any of a variety of drug screening techniques. The polypeptide or fragment employed in such a test may be affixed to a solid support, expressed on a cell surface, free in solution, or located intracellularly. One method of drug screening utilizes eukaryotic or prokaryotic host cells which are stably transformed with recombinant nucleic acids expressing the polypeptide or fragment. Drugs are screened against such transformed cells in competitive binding assays. One may measure, for example, the formulation of complexes between the agent being tested and a polypeptide of the present invention.

Thus, the present invention provides methods of screening for drugs or any other agents which affect activities mediated by the polypeptides of the present invention. These methods comprise contacting such an agent with a polypeptide of the present invention or a fragment thereof and assaying for the presence of a

complex between the agent and the polypeptide or a fragment thereof, by methods well known in the art. In such a competitive binding assay, the agents to screen are typically labeled. Following incubation, free agent is separated from that present in bound form, and the amount of free or uncomplexed label is a measure of the ability of a particular agent to bind to the polypeptides of the present invention.

Another technique for drug screening provides high throughput screening for compounds having suitable binding affinity to the polypeptides of the present invention, and is described in great detail in European Patent Application 84/03564, published on September 13, 1984, which is incorporated herein by reference herein. Briefly stated, large numbers of different small peptide test compounds are synthesized on a solid substrate, such as plastic pins or some other surface. The peptide test compounds are reacted with polypeptides of the present invention and washed. Bound polypeptides are then detected by methods well known in the art. Purified polypeptides are coated directly onto plates for use in the aforementioned drug screening techniques. In addition, non-neutralizing antibodies may be used to capture the peptide and immobilize it on the solid support.

This invention also contemplates the use of competitive drug screening assays in which neutralizing antibodies capable of binding polypeptides of the present invention specifically compete with a test compound for binding to the polypeptides or fragments thereof. In this manner, the antibodies are used to detect the presence of any peptide which shares one or more antigenic epitopes with a polypeptide of the invention.

Antisense And Ribozyme (Antagonists)

In specific embodiments, antagonists according to the present invention are nucleic acids corresponding to the sequences contained in SEQ ID NO:X, or the complementary strand thereof, and/or to nucleotide sequences contained in the cDNA contained in the related cDNA clone identified in Table 1. In one embodiment, antisense sequence is generated internally, by the organism, in another embodiment, the antisense sequence is separately administered (see, for example, O'Connor, J.,

Neurochem. 56:560 (1991). Oligodeoxynucleotides as Antisense Inhibitors of Gene Expression, CRC Press, Boca Raton, FL (1988). Antisense technology can be used to control gene expression through antisense DNA or RNA. or through triple-helix formation. Antisense techniques are discussed for example, in Okano, J., Neurochem. 56:560 (1991); Oligodeoxynucleotides as Antisense Inhibitors of Gene Expression, CRC Press, Boca Raton, FL (1988). Triple helix formation is discussed in, for instance, Lee et al., Nucleic Acids Research 6:3073 (1979); Cooney et al., Science 241:456 (1988); and Dervan et al., Science 251:1300 (1991). The methods are based on binding of a polynucleotide to a complementary DNA or RNA.

For example, the use of c-myc and c-myb antisense RNA constructs to inhibit the growth of the non-lymphocytic leukemia cell line HL-60 and other cell lines was previously described. (Wickstrom et al. (1988); Anfossi et al. (1989)). These experiments were performed in vitro by incubating cells with the oligoribonucleotide. A similar procedure for in vivo use is described in WO 91/15580. Briefly, a pair of oligonucleotides for a given antisense RNA is produced as follows: A sequence complimentary to the first 15 bases of the open reading frame is flanked by an EcoR1 site on the 5 end and a HindIII site on the 3 end. Next, the pair of oligonucleotides is heated at 90°C for one minute and then annealed in 2X ligation buffer (20mM TRIS HCl pH 7.5, 10mM MgCl2, 10MM dithiothreitol (DTT) and 0.2 mM ATP) and then ligated to the EcoR1/Hind III site of the retroviral vector PMV7 (WO 91/15580).

For example, the 5′ coding portion of a polynucleotide that encodes the polypeptide of the present invention may be used to design an antisense RNA oligonucleotide of from about 10 to 40 base pairs in length. A DNA oligonucleotide is designed to be complementary to a region of the gene involved in transcription thereby preventing transcription and the production of the receptor. The antisense RNA oligonucleotide hybridizes to the mRNA in vivo and blocks translation of the mRNA molecule into receptor polypeptide.

In one embodiment, the antisense nucleic acid of the invention is produced intracellularly by transcription from an exogenous sequence. For example, a vector or a portion thereof, is transcribed, producing an antisense nucleic acid (RNA) of the

invention. Such a vector would contain a sequence encoding the antisense nucleic acid. Such a vector can remain episomal or become chromosomally integrated, as long as it can be transcribed to produce the desired antisense RNA. Such vectors can be constructed by recombinant DNA technology methods standard in the art. Vectors can be plasmid, viral, or others known in the art, used for replication and expression in vertebrate cells. Expression of the sequence encoding the polypeptide of the present invnetion or fragments thereof, can be by any promoter known in the art to act in vertebrate, preferably human cells. Such promoters can be inducible or constitutive. Such promoters include, but are not limited to, the SV40 early promoter region (Bernoist and Chambon, Nature 29:304-310 (1981), the promoter contained in the 3' long terminal repeat of Rous sarcoma virus (Yamamoto et al., Cell 22:787-797 (1980), the herpes thymidine promoter (Wagner et al., Proc. Natl. Acad. Sci. U.S.A. 78:1441-1445 (1981), the regulatory sequences of the metallothionein gene (Brinster, et al., Nature 296:39-42 (1982)), etc.

The antisense nucleic acids of the invention comprise a sequence complementary to at least a portion of an RNA transcript of a gene of the present invention. However, absolute complementarity, although preferred, is not required. A sequence "complementary to at least a portion of an RNA," referred to herein, means a sequence having sufficient complementarity to be able to hybridize with the RNA, forming a stable duplex; in the case of double stranded antisense nucleic acids, a single strand of the duplex DNA may thus be tested, or triplex formation may be assayed. The ability to hybridize will depend on both the degree of complementarity and the length of the antisense nucleic acid. Generally, the larger the hybridizing nucleic acid, the more base mismatches with a RNA it may contain and still form a stable duplex (or triplex as the case may be). One skilled in the art can ascertain a tolerable degree of mismatch by use of standard procedures to determine the melting point of the hybridized complex.

Oligonucleotides that are complementary to the 5' end of the message, e.g., the 5' untranslated sequence up to and including the AUG initiation codon, should work most efficiently at inhibiting translation. However, sequences complementary to the

3' untranslated sequences of mRNAs have been shown to be effective at inhibiting translation of mRNAs as well. See generally, Wagner, R., 1994, Nature 372:333-335. Thus, oligonucleotides complementary to either the 5'- or 3'- non- translated, non-coding regions of polynucleotide sequences described herein could be used in an antisense approach to inhibit translation of endogenous mRNA. Oligonucleotides complementary to the 5' untranslated region of the mRNA should include the complement of the AUG start codon. Antisense oligonucleotides complementary to mRNA coding regions are less efficient inhibitors of translation but could be used in accordance with the invention. Whether designed to hybridize to the 5'-, 3'- or coding region of mRNA of the present invention, antisense nucleic acids should be at least six nucleotides in length, and are preferably oligonucleotides ranging from 6 to about 50 nucleotides in length. In specific aspects the oligonucleotide is at least 10 nucleotides, at least 17 nucleotides, at least 25 nucleotides or at least 50 nucleotides.

The polynucleotides of the invention can be DNA or RNA or chimeric mixtures or derivatives or modified versions thereof, single-stranded or double-stranded. The oligonucleotide can be modified at the base moiety, sugar moiety, or phosphate backbone, for example, to improve stability of the molecule, hybridization, etc. The oligonucleotide may include other appended groups such as peptides (e.g., for targeting host cell receptors in vivo), or agents facilitating transport across the cell membrane (see, e.g., Letsinger et al., 1989, Proc. Natl. Acad. Sci. U.S.A. 86:6553-6556; Lemaitre et al., 1987, Proc. Natl. Acad. Sci. 84:648-652; PCT Publication No. WO88/09810, published December 15, 1988) or the blood-brain barrier (see, e.g., PCT Publication No. WO89/10134, published April 25, 1988), hybridization-triggered cleavage agents. (See, e.g., Krol et al., 1988, BioTechniques 6:958-976) or intercalating agents. (See, e.g., Zon, 1988, Pharm. Res. 5:539-549). To this end, the oligonucleotide may be conjugated to another molecule, e.g., a peptide, hybridization triggered cross-linking agent, transport agent, hybridization-triggered cleavage agent, etc.

The antisense oligonucleotide may comprise at least one modified base moiety which is selected from the group including, but not limited to, 5-fluorouracil.

5-bromouracil. 5-chlorouracil, 5-iodouracil, hypoxanthine, xantine, 4-acetylcytosine, 5-(carboxyhydroxylmethyl) uracil, 5-carboxymethylaminomethyl-2-thiouridine, 5-carboxymethylaminomethyluracil, dihydrouracil, beta-D-galactosylqueosine, inosine, N6-isopentenyladenine, 1-methylguanine, 1-methylinosine, 2,2-dimethylguanine, 2-methyladenine, 2-methylguanine, 3-methylcytosine, 5-methylcytosine, N6-adenine, 7-methylguanine, 5-methylaminomethyluracil, 5-methoxyaminomethyl-2-thiouracil, beta-D-mannosylqueosine, 5'-methoxycarboxymethyluracil, 5-methoxyuracil, 2-methylthio-N6-isopentenyladenine, uracil-5-oxyacetic acid (v), wybutoxosine, pseudouracil, queosine. 2-thiocytosine, 5-methyl-2-thiouracil, 2-thiouracil, 4-thiouracil, 5-methyluracil. uracil-5-oxyacetic acid methylester, uracil-5-oxyacetic acid (v), 5-methyl-2-thiouracil, 3-(3-amino-3-N-2-carboxypropyl) uracil, (acp3)w, and 2,6-diaminopurine.

The antisense oligonucleotide may also comprise at least one modified sugar moiety selected from the group including, but not limited to, arabinose, 2-fluoroarabinose, xylulose, and hexose.

In yet another embodiment, the antisense oligonucleotide comprises at least one modified phosphate backbone selected from the group including, but not limited to, a phosphorothioate, a phosphorodithioate, a phosphoramidothioate, a phosphoramidate, a phosphordiamidate, a methylphosphonate, an alkyl phosphotriester, and a formacetal or analog thereof.

In yet another embodiment, the antisense oligonucleotide is an a-anomeric oligonucleotide. An a-anomeric oligonucleotide forms specific double-stranded hybrids with complementary RNA in which, contrary to the usual b-units, the strands run parallel to each other (Gautier et al., 1987, Nucl. Acids Res. 15:6625-6641). The oligonucleotide is a 2'-0-methylribonucleotide (Inoue et al., 1987, Nucl. Acids Res. 15:6131-6148), or a chimeric RNA-DNA analogue (Inoue et al., 1987, FEBS Lett. 215:327-330).

Polynucleotides of the invention may be synthesized by standard methods known in the art, e.g. by use of an automated DNA synthesizer (such as are

commercially available from Biosearch. Applied Biosystems. etc.). As examples, phosphorothioate oligonucleotides may be synthesized by the method of Stein et al. (1988, Nucl. Acids Res. 16:3209), methylphosphonate oligonucleotides can be prepared by use of controlled pore glass polymer supports (Sarin et al., 1988. Proc. Natl. Acad. Sci. U.S.A. 85:7448-7451), etc.

While antisense nucleotides complementary to the coding region sequence could be used, those complementary to the transcribed untranslated region are most preferred.

Potential antagonists according to the invention also include catalytic RNA, or a ribozyme (See, e.g., PCT International Publication WO 90/11364, published October 4, 1990; Sarver et al, Science 247:1222-1225 (1990). While ribozymes that cleave mRNA at site specific recognition sequences can be used to destroy mRNAs, the use of hammerhead ribozymes is preferred. Hammerhead ribozymes cleave mRNAs at locations dictated by flanking regions that form complementary base pairs with the target mRNA. The sole requirement is that the target mRNA have the following sequence of two bases: 5'-UG-3'. The construction and production of hammerhead ribozymes is well known in the art and is described more fully in Haseloff and Gerlach, Nature 334:585-591 (1988). There are numerous potential hammerhead ribozyme cleavage sites within the nucleotide sequence of SEQ ID NO:X. Preferably, the ribozyme is engineered so that the cleavage recognition site is located near the 5' end of the mRNA; i.e., to increase efficiency and minimize the intracellular accumulation of non-functional mRNA transcripts.

As in the antisense approach, the ribozymes of the invention can be composed of modified oligonucleotides (e.g. for improved stability, targeting, etc.) and should be delivered to cells which express in vivo. DNA constructs encoding the ribozyme may be introduced into the cell in the same manner as described above for the introduction of antisense encoding DNA. A preferred method of delivery involves using a DNA construct "encoding" the ribozyme under the control of a strong constitutive promoter, such as, for example, pol III or pol II promoter, so that transfected cells will produce sufficient quantities of the ribozyme to destroy

endogenous messages and inhibit translation. Since ribozymes unlike antisense molecules, are catalytic, a lower intracellular concentration is required for efficiency.

Antagonist/agonist compounds may be employed to inhibit the cell growth and proliferation effects of the polypeptides of the present invention on neoplastic cells and tissues, i.e. stimulation of angiogenesis of tumors, and, therefore. retard or prevent abnormal cellular growth and proliferation, for example, in tumor formation or growth.

The antagonist/agonist may also be employed to prevent hyper-vascular diseases, and prevent the proliferation of epithelial lens cells after extracapsular cataract surgery. Prevention of the mitogenic activity of the polypeptides of the present invention may also be desirous in cases such as restenosis after balloon angioplasty.

The antagonist/agonist may also be employed to prevent the growth of scar tissue during wound healing.

The antagonist/agonist may also be employed to treat the diseases described herein.

Thus, the invention provides a method of treating disorders or diseases, including but not limited to the disorders or diseases listed throughout this application, associated with overexpression of a polynucleotide of the present invention by administering to a patient (a) an antisense molecule directed to the polynucleotide of the present invention, and/or (b) a ribozyme directed to the polynucleotide of the present invention.

Other Activities

A polypeptide. polynucleotide, agonist, or antagonist of the present invention, as a result of the ability to stimulate vascular endothelial cell growth. may be employed in treatment for stimulating re-vascularization of ischemic tissues due to various disease conditions such as thrombosis, arteriosclerosis, and other cardiovascular conditions. The polypeptide, polynucleotide, agonist, or antagonist of

the present invention may also be employed to stimulate angiogenesis and limb regeneration, as discussed above.

A polypeptide, polynucleotide, agonist, or antagonist of the present invention may also be employed for treating wounds due to injuries, burns, post-operative tissue repair, and ulcers since they are mitogenic to various cells of different origins, such as fibroblast cells and skeletal muscle cells, and therefore, facilitate the repair or replacement of damaged or diseased tissue.

A polypeptide, polynucleotide, agonist, or antagonist of the present invention may also be employed stimulate neuronal growth and to treat and prevent neuronal damage which occurs in certain neuronal disorders or neuro-degenerative conditions such as Alzheimer's disease, Parkinson's disease, and AIDS-related complex. A polypeptide, polynucleotide, agonist, or antagonist of the present invention may have the ability to stimulate chondrocyte growth, therefore, they may be employed to enhance bone and periodontal regeneration and aid in tissue transplants or bone grafts.

A polypeptide, polynucleotide, agonist, or antagonist of the present invention may be also be employed to prevent skin aging due to sunburn by stimulating keratinocyte growth.

A polypeptide, polynucleotide, agonist, or antagonist of the present invention may also be employed for preventing hair loss, since FGF family members activate hair-forming cells and promotes melanocyte growth. Along the same lines, a polypeptide, polynucleotide, agonist, or antagonist of the present invention may be employed to stimulate growth and differentiation of hematopoietic cells and bone marrow cells when used in combination with other cytokines.

A polypeptide, polynucleotide, agonist, or antagonist of the present invention may also be employed to maintain organs before transplantation or for supporting cell culture of primary tissues. A polypeptide, polynucleotide, agonist, or antagonist of the present invention may also be employed for inducing tissue of mesodermal origin to differentiate in early embryos.

A polypeptide, polynucleotide, agonist, or antagonist of the present invention may also increase or decrease the differentiation or proliferation of embryonic stem cells, besides, as discussed above, hematopoietic lineage.

A polypeptide, polynucleotide, agonist, or antagonist of the present invention may also be used to modulate mammalian characteristics, such as body height, weight, hair color, eye color, skin, percentage of adipose tissue, pigmentation, size, and shape (e.g., cosmetic surgery). Similarly, a polypeptide, polynucleotide, agonist, or antagonist of the present invention may be used to modulate mammalian metabolism affecting catabolism, anabolism, processing, utilization, and storage of energy.

A polypeptide, polynucleotide, agonist, or antagonist of the present invention may be used to change a mammal's mental state or physical state by influencing biorhythms, caricadic rhythms, depression (including depressive disorders), tendency for violence, tolerance for pain, reproductive capabilities (preferably by Activin or Inhibin-like activity), hormonal or endocrine levels, appetite, libido, memory, stress, or other cognitive qualities.

A polypeptide, polynucleotide, agonist, or antagonist of the present invention may also be used as a food additive or preservative, such as to increase or decrease storage capabilities, fat content, lipid, protein, carbohydrate, vitamins, minerals, cofactors or other nutritional components.

The above-recited applications have uses in a wide variety of hosts. Such hosts include, but are not limited to, human, murine, rabbit, goat, guinea pig, camel, horse, mouse, rat, hamster, pig, micro-pig, chicken, goat, cow, sheep, dog, cat, non-human primate, and human. In specific embodiments, the host is a mouse, rabbit, goat, guinea pig, chicken, rat, hamster, pig, sheep, dog or cat. In preferred embodiments, the host is a mammal. In most preferred embodiments, the host is a human.

Other Preferred Embodiments

Other preferred embodiments of the claimed invention include an isolated nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to a sequence of at least about 50 contiguous nucleotides in the nucleotide sequence of SEQ ID NO:X or the complementary strand thereto, and/or the cDNA in the related cDNA clone contained in the deposit.

Also preferred is a nucleic acid molecule wherein said sequence of contiguous nucleotides is included in the nucleotide sequence of SEQ ID NO:X in the range of positions identified as "Start" and "End" in columns 7 and 8 as defined for SEQ ID NO:X in Table 1.

Also preferred is an isolated nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to a sequence of at least about 150 contiguous nucleotides in the nucleotide sequence of SEQ ID NO:X or the complementary strand thereto, and/or the cDNA in the related cDNA clone contained in the deposit.

Further preferred is an isolated nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to a sequence of at least about 500 contiguous nucleotides in the nucleotide sequence of SEQ ID NO:X or the complementary strand thereto, and/or the cDNA in the related cDNA clone contained in the deposit.

A further preferred embodiment is a nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to the nucleotide sequence of SEQ ID NO:X in the range of positions identified as "Start" and "End" in columns 7 and 8 as defined for SEQ ID NO:X in Table 1.

A further preferred embodiment is an isolated nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to the complete nucleotide sequence of SEQ ID NO:X or the complementary strand thereto, and/or the cDNA in the related cDNA clone contained in the deposit.

Also preferred is an isolated nucleic acid molecule which hybridizes under stringent hybridization conditions to a nucleic acid molecule comprising a nucleotide sequence of SEQ ID NO:X or the complementary strand thereto, and/or the cDNA in

the related cDNA clone contained in the deposit, wherein said nucleic acid molecule which hybridizes does not hybridize under stringent hybridization conditions to a nucleic acid molecule having a nucleotide sequence consisting of only A residues or of only T residues.

Also preferred is a composition of matter comprising a DNA molecule which comprises a cDNA clone contained in the deposit.

Also preferred is an isolated nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to a sequence of at least 50 contiguous nucleotides in the nucleotide sequence of the cDNA in the related cDNA clone contained in the deposit.

Also preferred is an isolated nucleic acid molecule, wherein said sequence of at least 50 contiguous nucleotides is included in the nucleotide sequence of an open reading frame sequence encoded by the cDNA in the related cDNA clone contained in the deposit.

Also preferred is an isolated nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to sequence of at least 150 contiguous nucleotides in the nucleotide sequence encoded by the cDNA in the related cDNA clone contained in the deposit.

A further preferred embodiment is an isolated nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to sequence of at least 500 contiguous nucleotides in the nucleotide sequence encoded by the cDNA in the related cDNA clone contained in the deposit.

A further preferred embodiment is an isolated nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to the complete nucleotide sequence encoded by the cDNA in the related cDNA clone contained in the deposit.

A further preferred embodiment is a method for detecting in a biological sample a nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to a sequence of at least 50 contiguous nucleotides in a sequence selected from the group consisting of: a nucleotide sequence of SEQ ID NO:X or the

complementary strand thereto; and a nucleotide sequence encoded by the cDNA in the related cDNA clone contained in the deposit; which method comprises a step of comparing a nucleotide sequence of at least one nucleic acid molecule in said sample with a sequence selected from said group and determining whether the sequence of said nucleic acid molecule in said sample is at least 95% identical to said selected sequence.

Also preferred is the above method wherein said step of comparing sequences comprises determining the extent of nucleic acid hybridization between nucleic acid molecules in said sample and a nucleic acid molecule comprising said sequence selected from said group. Similarly, also preferred is the above method wherein said step of comparing sequences is performed by comparing the nucleotide sequence determined from a nucleic acid molecule in said sample with said sequence selected from said group. The nucleic acid molecules can comprise DNA molecules or RNA molecules.

A further preferred embodiment is a method for identifying the species, tissue or cell type of a biological sample which method comprises a step of detecting nucleic acid molecules in said sample, if any, comprising a nucleotide sequence that is at least 95% identical to a sequence of at least 50 contiguous nucleotides in a sequence selected from the group consisting of: a nucleotide sequence of SEQ ID NO:X or the complementary strand thereto; and a nucleotide sequence encoded by the cDNA in the related cDNA clone contained in the deposit.

Also preferred is the above method for identifying the species, tissue or cell type of a biological sample which comprises a step of detecting nucleic acid molecules comprising a nucleotide sequence in a panel of at least two nucleotide sequences, wherein at least one sequence in said panel is at least 95% identical to a sequence of at least 50 contiguous nucleotides in a sequence selected from said group.

Also preferred is a method for diagnosing in a subject a pathological condition associated with abnormal structure or expression of a nucleotide sequence of SEQ ID NO:X; or the cDNA in the related cDNA clone identified in Table 1 which encodes a protein, wherein the method comprises a step of detecting in a biological sample

obtained from said subject nucleic acid molecules. if any, comprising a nucleotide sequence that is at least 95% identical to a sequence of at least 50 contigupus nucleotides in a sequence selected from the group consisting of: a nucleotide sequence of SEQ ID NO:X or the complementary strand thereto; and a nucleotide sequence of the cDNA in the related cDNA clone contained in the deposit.

Also preferred is the above method for diagnosing a pathological condition which comprises a step of detecting nucleic acid molecules comprising a nucleotide sequence in a panel of at least two nucleotide sequences, wherein at least one sequence in said panel is at least 95% identical to a sequence of at least 50 contiguous nucleotides in a sequence selected from said group.

Also preferred is a composition of matter comprising isolated nucleic acid molecules wherein the nucleotide sequences of said nucleic acid molecules comprise a panel of at least two nucleotide sequences, wherein at least one sequence in said panel is at least 95% identical to a sequence of at least 50 contiguous nucleotides in a sequence selected from the group consisting of: a nucleotide sequence of SEQ ID NO:X or the complementary strand thereto; and a nucleotide sequence encoded by the cDNA in the related cDNA clone contained in the deposit. The nucleic acid molecules can comprise DNA molecules or RNA molecules.

Also preferred is a composition of matter comprising isolated nucleic acid molecules wherein the nucleotide sequences of said nucleic acid molecules comprise a DNA microarray or "chip" of at least 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 40, 50, 100, 150, 200, 250, 300, 500, 1000, 2000, 3000 or 4000 nucleotide sequences, wherein at least one sequence in said DNA microarray or "chip" is at least 95% identical to a sequence of at least 50 contiguous nucleotides in a sequence selected from the group consisting of: a nucleotide sequence of SEQ ID NO:X or the complementary strand thereto; and a nucleotide sequence encoded by the cDNA in the cDNA clone referenced in Table 1. The nucleic acid molecules can comprise DNA molecules or RNA molecules.

Also preferred is an isolated polypeptide comprising an amino acid sequence at least 90% identical to a sequence of at least about 10 contiguous amino acids in the

polypeptide sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X; and/or a polypeptide encoded by the cDNA in the related cDNA clone contained in the deposit.

Also preferred is an isolated polypeptide comprising an amino acid sequence at least 95% identical to a sequence of at least about 30 contiguous amino acids in the amino acid sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X; and/or a polypeptide encoded by the cDNA in the related cDNA clone contained in the deposit.

Further preferred is an isolated polypeptide comprising an amino acid sequence at least 95% identical to a sequence of at least about 100 contiguous amino acids in the amino acid sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X; and/or a polypeptide encoded by the cDNA in the related cDNA clone contained in the deposit.

Further preferred is an isolated polypeptide comprising an amino acid sequence at least 95% identical to the complete amino acid sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X; and/or a polypeptide encoded by the cDNA in the related cDNA clone contained in the deposit.

Further preferred is an isolated polypeptide comprising an amino acid sequence at least 90% identical to a sequence of at least about 10 contiguous amino acids in the complete amino acid sequence of a polypeptide encoded by the cDNA clone referenced in Table 1.

Also preferred is a polypeptide wherein said sequence of contiguous amino acids is included in the amino acid sequence of a portion of said polypeptide encoded by the cDNA clone referenced in Table 1; a polypeptide encoded by SEQ ID NO:X; and/or the polypeptide sequence of SEQ ID NO:Y.

Also preferred is an isolated polypeptide comprising an amino acid sequence at least 95% identical to a sequence of at least about 30 contiguous amino acids in the amino acid sequence of a polypeptide encoded by the cDNA clone referenced in Table 1.

Also preferred is an isolated polypeptide comprising an amino acid sequence at least 95% identical to a sequence of at least about 100 contiguous amino acids in the amino acid sequence of a polypeptide encoded by the cDNA clone referenced in Table 1.

Also preferred is an isolated polypeptide comprising an amino acid sequence at least 95% identical to the amino acid sequence of a polypeptide encoded by the cDNA clone referenced in Table 1.

Further preferred is an isolated antibody which binds specifically to a polypeptide comprising an amino acid sequence that is at least 90% identical to a sequence of at least 10 contiguous amino acids in a sequence selected from the group consisting of: a polypeptide sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X; and a polypeptide encoded by the cDNA in the related cDNA clone contained in the deposit.

Further preferred is a method for detecting in a biological sample a polypeptide comprising an amino acid sequence which is at least 90% identical to a sequence of at least 10 contiguous amino acids in a sequence selected from the group consisting of: a polypeptide sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X; and a polypeptide encoded by the cDNA in the related cDNA clone referenced in Table 1; which method comprises a step of comparing an amino acid sequence of at least one polypeptide molecule in said sample with a sequence selected from said group and determining whether the sequence of said polypeptide molecule in said sample is at least 90% identical to said sequence of at least 10 contiguous amino acids.

Also preferred is the above method wherein said step of comparing an amino acid sequence of at least one polypeptide molecule in said sample with a sequence selected from said group comprises determining the extent of specific binding of polypeptides in said sample to an antibody which binds specifically to a polypeptide comprising an amino acid sequence that is at least 90% identical to a sequence of at least 10 contiguous amino acids in a sequence selected from the group consisting of: a polypeptide sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X;

and a polypeptide encoded by the cDNA in the related cDNA clone referenced in Table 1.

Also preferred is the above method wherein said step of comparing sequences is performed by comparing the amino acid sequence determined from a polypeptide molecule in said sample with said sequence selected from said group.

Also preferred is a method for identifying the species, tissue or cell type of a biological sample which method comprises a step of detecting polypeptide molecules in said sample, if any, comprising an amino acid sequence that is at least 90% identical to a sequence of at least 10 contiguous amino acids in a sequence selected from the group consisting of: polypeptide sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X; and a polypeptide encoded by the cDNA in the related cDNA clone referenced in Table 1.

Also preferred is the above method for identifying the species, tissue or cell type of a biological sample, which method comprises a step of detecting polypeptide molecules comprising an amino acid sequence in a panel of at least two amino acid sequences, wherein at least one sequence in said panel is at least 90% identical to a sequence of at least 10 contiguous amino acids in a sequence selected from the above group.

Also preferred is a method for diagnosing in a subject a pathological condition associated with abnormal structure or expression of a nucleic acid sequence identified in Table 1 encoding a polypeptide, which method comprises a step of detecting in a biological sample obtained from said subject polypeptide molecules comprising an amino acid sequence in a panel of at least two amino acid sequences, wherein at least one sequence in said panel is at least 90% identical to a sequence of at least 10 contiguous amino acids in a sequence selected from the group consisting of: polypeptide sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X; and a polypeptide encoded by the cDNA in the related cDNA clone referenced in Table 1.

In any of these methods, the step of detecting said polypeptide molecules includes using an antibody.

Also preferred is an isolated nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to a nucleotide sequence encoding a polypeptide wherein said polypeptide comprises an amino acid sequence that is at least 90% identical to a sequence of at least 10 contiguous amino acids in a sequence selected from the group consisting of: polypeptide sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X; and a polypeptide encoded by the cDNA in the related cDNA clone referenced in Table 1.

Also preferred is an isolated nucleic acid molecule, wherein said nucleotide sequence encoding a polypeptide has been optimized for expression of said polypeptide in a prokaryotic host.

Also preferred is an isolated nucleic acid molecule, wherein said polypeptide comprises an amino acid sequence selected from the group consisting of: polypeptide sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X; and a polypeptide encoded by the cDNA in the related cDNA clone referenced in Table 1.

Further preferred is a method of making a recombinant vector comprising inserting any of the above isolated nucleic acid molecule into a vector. Also preferred is the recombinant vector produced by this method. Also preferred is a method of making a recombinant host cell comprising introducing the vector into a host cell, as well as the recombinant host cell produced by this method.

Also preferred is a method of making an isolated polypeptide comprising culturing this recombinant host cell under conditions such that said polypeptide is expressed and recovering said polypeptide. Also preferred is this method of making an isolated polypeptide, wherein said recombinant host cell is a eukaryotic cell and said polypeptide is a human protein comprising an amino acid sequence selected from the group consisting of: polypeptide sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X; and a polypeptide encoded by the cDNA in the related cDNA clone referenced in Table 1. The isolated polypeptide produced by this method is also preferred.

Also preferred is a method of treatment of an individual in need of an increased level of a protein activity, which method comprises administering to such

an individual a Therapeutic comprising an amount of an isolated polypeptide, polynucleotide, immunogenic fragment or analogue thereof, binding agent, antibody, or antigen binding fragment of the claimed invention effective to increase the level of said protein activity in said individual.

Also preferred is a method of treatment of an individual in need of a decreased level of a protein activity, which method comprised administering to such an individual a Therapeutic comprising an amount of an isolated polypeptide, polynucleotide, immunogenic fragment or analogue thereof, binding agent, antibody, or antigen binding fragment of the claimed invention effective to decrease the level of said protein activity in said individual.

Having generally described the invention, the same will be more readily understood by reference to the following examples, which are provided by way of illustration and are not intended as limiting.

Examples

Example 1: Isolation of a Selected cDNA Clone From the Deposited Sample

Each deposited cDNA clone is contained in a plasmid vector. Table 5 identifies the vectors used to construct the cDNA library from which each clone was isolated. In many cases, the vector used to construct the library is a phage vector from which a plasmid has been excised. The following correlates the related plasmid for each phage vector used in constructing the cDNA library. For example, where a particular clone is identified in Table 5 as being isolated in the vector "Lambda Zap," the corresponding deposited clone is in "pBluescript."

Vector Used to Construct Library	Corresponding Deposited Plasmid
Lambda Zap	pBluescript (pBS)
Uni-Zap XR	pBluescript (pBS)
Zap Express	pBK
lafmid BA	plafmid BA
pSport1	pSport1
pCMVSport 2.0	pCMVSport 2.0
pCMVSport 3.0	pCMVSport 3.0
pCR®2.1	pCR®2.1

Vectors Lambda Zap (U.S. Patent Nos. 5,128,256 and 5,286,636), Uni-Zap XR (U.S. Patent Nos. 5,128, 256 and 5,286,636), Zap Express (U.S. Patent Nos. 5,128,256 and 5,286,636), pBluescript (pBS) (Short, J. M. et al., Nucleic Acids Res. 16:7583-7600 (1988); Alting-Mees, M. A. and Short, J. M., Nucleic Acids Res. 17:9494 (1989)) and pBK (Alting-Mees, M. A. et al., Strategies 5:58-61 (1992)) are commercially available from Stratagene Cloning Systems, Inc., 11011 N. Torrey Pines Road, La Jolla, CA, 92037. pBS contains an ampicillin resistance gene and pBK contains a neomycin resistance gene. Both can be transformed into E. coli strain XL-1 Blue, also available from Stratagene. pBS comes in 4 forms SK+, SK-, KS+ and KS. The S and K refers to the orientation of the polylinker to the T7 and T3

primer sequences which flank the polylinker region ("S" is for SacI and "K" is for KpnI which are the first sites on each respective end of the linker). "+" or "-" refer to the orientation of the f1 origin of replication ("ori"), such that in one orientation, single stranded rescue initiated from the f1 ori generates sense strand DNA and in the other, antisense.

Vectors pSport1, pCMVSport 2.0 and pCMVSport 3.0, were obtained from Life Technologies, Inc., P. O. Box 6009, Gaithersburg, MD 20897. All Sport vectors contain an ampicillin resistance gene and may be transformed into E. coli strain DH10B, also available from Life Technologies. (See, for instance, Gruber, C. E., et al., Focus 15:59 (1993).) Vector lafmid BA (Bento Soares, Columbia University, NY) contains an ampicillin resistance gene and can be transformed into E. coli strain XL-1 Blue. Vector pCR®2.1, which is available from Invitrogen, 1600 Faraday Avenue, Carlsbad, CA 92008, contains an ampicillin resistance gene and may be transformed into E. coli strain DH10B, available from Life Technologies. (See, for instance, Clark, J. M., Nuc. Acids Res. 16:9677-9686 (1988) and Mead, D. et al., Bio/Technology 9: (1991).) Preferably, a polynucleotide of the present invention does not comprise the phage vector sequences identified for the particular clone in Table 5, as well as the corresponding plasmid vector sequences designated above.

The deposited material in the sample assigned the ATCC Deposit Number cited by reference to Table 2 and 5 for any given cDNA clone also may contain one or more additional plasmids, each comprising a cDNA clone different from that given clone. Thus, deposits sharing the same ATCC Deposit Number contain at least a plasmid for each cDNA clone referenced in Table 1.

TABLE 5

Libraries owned by Catalog	Catalog Description	Vector	ATCC Deposit
HUKA HUKB HUKC HUKD HUKE HUKF HUKG	Human Uterine Cancer	Lambda ZAP II	LP01
HCNA HCNB	Human Colon	Lambda Zap II	LP01
HFFA	Human Fetal Brain, random primed	Lambda Zap II	LP01
HTWA	Resting T-Cell	Lambda ZAP II	LP01
HBQA	Early Stage Human Brain, random primed	Lambda ZAP II	LP01
HLMB HLMF HLMG HLMH HLMI HLMJ HLMM HLMN	breast lymph node CDNA library	Lambda ZAP II	LP01
HCQA HCQB	human colon cancer	Lamda ZAP II	LP01
HMEA HMEC HMED HMEE HMEF HMEG HMEI HMEJ HMEK HMEL	Human Microvascular Endothelial Cells, fract. A	Lambda ZAP II	LP01
HUSA HUSC	Human Umbilical Vein Endothelial Cells, fract. A	Lambda ZAP II	LP01
HLQA HLQB	Hepatocellular Tumor	Lambda ZAP II	LP01
HHGA HHGB HHGC HHGD	Hemangiopericytoma	Lambda ZAP II	LP01
HSDM	Human Striatum Depression, re-rescue	Lambda ZAP II	LP01
HUSH	H Umbilical Vein Endothelial Cells, frac A, re-excision	Lambda ZAP II	LP01
HSGS	Salivary gland, subtracted	Lambda ZAP II	LP01
HFXA HFXB HFXC HFXD HFXE HFXF HFXG HFXH	Brain frontal cortex	Lambda ZAP II	LP01
HPQA HPQB HPQC	PERM TF274	Lambda ZAP II	LP01
HFXJ HFXK	Brain Frontal Cortex, re-excision	Lambda ZAP II	LP01
HCWA HCWB HCWC HCWD HCWE HCWF HCWG HCWH HCWI HCWJ HCWK	CD34 positive cells (Cord Blood)	ZAP Express	LP02
HCUA HCUB HCUC	CD34 depleted Buffy Coat (Cord Blood)	ZAP Express	LP02
HRSM	A-14 cell line	ZAP Express	LP02
HRSA	A1-CELL LINE	ZAP Express	LP02
HCUD HCUE HCUF HCUG HCUH HCUI	CD34 depleted Buffy Coat (Cord Blood), re-excision	ZAP Express	LP02
HBXE HBXF HBXG	H. Whole Brain #2, re-excision	ZAP Express	LP02
HRLM	L8 cell line	ZAP Express	LP02
HBXA HBXB HBXC HBXD	Human Whole Brain #2 - Oligo dT > 1.5Kb	ZAP Express	LP02
HUDA HUDB HUDC	Testes	ZAP Express	LP02
HHTM HHTN HHTO	H. hypothalamus, frac A;re-excision	ZAP Express	LP02
HHTL	H. hypothalamus, frac A	ZAP Express	LP02
HASA HASD	Human Adult Spleen	Uni-ZAP XR	LP03
HFKC HFKD HFKE HFKF HFKG	Human Fetal Kidney	Uni-ZAP XR	LP03
HE8A HE8B HE8C HE8D HE8E HE8F HE8M HE8N	Human 8 Week Whole Embryo	Uni-ZAP XR	LP03
HGBA HGBD HGBE HGBF HGBG HGBH HGBI	Human Gall Bladder	Uni-ZAP XR	LP03
HLHA HLHB HLHC HLHD HLHE	Human Fetal Lung III	Uni-ZAP XR	LP03

Libraries owned by Catalog	Catalog Description	Vector	ATCC Deposit
HLHF HLHG HLHH HLHQ			
HPMA HPMB HPMC HPMD HPME HPMF HPMG HPMH	Human Placenta	Uni-ZAP XR	LP03
HPRA HPRB HPRC HPRD	Human Prostate	Uni-ZAP XR	LP03
HSIA HSIC HSID HSIE	Human Adult Small Intestine	Uni-ZAP XR	LP03
HTEA HTEB HTEC HTED HTEE HTEF HTEG HTEH HTEI HTEJ HTEK	Human Testes	Uni-ZAP XR	LP03
HTPA HTPB HTPC HTPD HTPE	Human Pancreas Tumor	Uni-ZAP XR	LP03
HTTA HTTB HTTC HTTD HTTE HTTF	Human Testes Tumor	Uni-ZAP XR	LP03
HAPA HAPB HAPC HAPM	Human Adult Pulmonary	Uni-ZAP XR	LP03
HETA HETB HETC HETD HETE HETF HETG HETH HETI	Human Endometrial Tumor	Uni-ZAP XR	LP03
HHFB HHFC HHFD HHFE HHFF HHFG HHFH HHFI	Human Fetal Heart	Uni-ZAP XR	LP03
HHPB HHPC HHPD HHPE HHPF HHPG HHPH	Human Hippocampus	Uni-ZAP XR	LP03
HCE1 HCE2 HCE3 HCE4 HCE5 HCEB HCEC HCED HCEE HCEF HCEG	Human Cerebellum	Uni-ZAP XR	LP03
HUVB HUVC HUVD HUVE	Human Umbilical Vein, Endo. remake	Uni-ZAP XR	LP03
HSTA HSTB HSTC HSTD	Human Skin Tumor	Uni-ZAP XR	LP03
HTAA HTAB HTAC HTAD HTAE	Human Activated T-Cells	Uni-ZAP XR	LP03
HFEA HFEB HFEC	Human Fetal Epithelium (Skin)	Uni-ZAP XR	LP03
HJPA HJPB HJPC HJPD	HUMAN JURKAT MEMBRANE BOUND POLYSOMES	Uni-ZAP XR	LP03
HESA	Human epithelioid sarcoma	Uni-Zap XR	LP03
HLTA HLTB HLTC HLTD HLTE HLTF	Human T-Cell Lymphoma	Uni-ZAP XR	LP03
HFTA HFTB HFTC HFTD	Human Fetal Dura Mater	Uni-ZAP XR	LP03
HRDA HRDB HRDC HRDD HRDE HRDF	Human Rhabdomyosarcoma	Uni-ZAP XR	LP03
HCAA HCAB HCAC	Cem cells cyclohexamide treated	Uni-ZAP XR	LP03
HRGA HRGB HRGC HRGD	Raji Cells, cyclohexamide treated	Uni-ZAP XR	LP03
HSUA HSUB HSUC HSUM	Supt Cells, cyclohexamide treated	Uni-ZAP XR	LP03
HT4A HT4C HT4D	Activated T-Cells, 12 hrs.	Uni-ZAP XR	LP03
HE9A HE9B HE9C HE9D HE9E HE9F HE9G HE9H HE9M HE9N	Nine Week Old Early Stage Human	Uni-ZAP XR	LP03
HATA HATB HATC HATD HATE	Human Adrenal Gland Tumor	Uni-ZAP XR	LP03
HT5A	Activated T-Cells, 24 hrs.	Uni-ZAP XR	LP03
HFGA HFGM	Human Fetal Brain	Uni-ZAP XR	LP03
HNEA HNEB HNEC HNED HNEE	Human Neutrophil	Uni-ZAP XR	LP03
HBGB HBGD	Human Primary Breast Cancer	Uni-ZAP XR	LP03
HBNA HBNB	Human Normal Breast	Uni-ZAP XR	LP03
HCAS	Cem Cells, cyclohexamide treated, subtra	Uni-ZAP XR	LP03
HHPS	Human Hippocampus, subtracted	pBS	LP03
HKCS HKCU	Human Colon Cancer, subtracted	pBS	LP03
HRGS	Raji cells, cyclohexamide treated, subtracted	pBS	LP03

Libraries owned by Catalog	Catalog Description	Vector	ATCC Deposit
HSUT	Supt cells. cyclohexamide treated. differentially expressed	pBS	LP03
HT4S	Activated T-Cells. 12 hrs. subtracted	Uni-ZAP XR	LP03
HCDA HCDB HCDC HCDD HCDE	Human Chondrosarcoma	Uni-ZAP XR	LP03
HOAA HOAB HOAC	Human Osteosarcoma	Uni-ZAP XR	LP03
HTLA HTLB HTLC HTLD HTLE HTLF	Human adult testis. large inserts	Uni-ZAP XR	LP03
HLMA HLMC HLMD	Breast Lymph node cDNA library	Uni-ZAP XR	LP03
H6EA H6EB H6EC	HL-60. PMA 4H	Uni-ZAP XR	LP03
HTXA HTXB HTXC HTXD HTXE HTXF HTXG HTXH	Activated T-Cell (12hs)/Thiouridine labelledEco	Uni-ZAP XR	LP03
HNFA HNFB HNFC HNFD HNFE HNFF HNFG HNFH HNFJ	Human Neutrophil. Activated	Uni-ZAP XR	LP03
HTOB HTOC	HUMAN TONSILS. FRACTION 2	Uni-ZAP XR	LP03
HMGB	Human OB MG63 control fraction I	Uni-ZAP XR	LP03
HOPB	Human OB HOS control fraction I	Uni-ZAP XR	LP03
HORB	Human OB HOS treated (10 nM E2) fraction I	Uni-ZAP XR	LP03
HSVA HSVB HSVC	Human Chronic Synovitis	Uni-ZAP XR	LP03
HROA	HUMAN STOMACH	Uni-ZAP XR	LP03
HBJA HBJB HBJC HBJD HBJE HBJF HBJG HBJH HBJI HBJJ HBJK	HUMAN B CELL LYMPHOMA	Uni-ZAP XR	LP03
HCRA HCRB HCRC	human corpus colosum	Uni-ZAP XR	LP03
HODA HODB HODC HODD	human ovarian cancer	Uni-ZAP XR	LP03
HDSA	Dermatofibrosarcoma Protuberance	Uni-ZAP XR	LP03
HMWA HMWB HMWC HMWD HMWE HMWF HMWG HMWH HMWI HMWJ	Bone Marrow Cell Line (RS4;11)	Uni-ZAP XR	LP03
HSOA	stomach cancer (human)	Uni-ZAP XR	LP03
HERA	SKIN	Uni-ZAP XR	LP03
HMDA	Brain-medulloblastoma	Uni-ZAP XR	LP03
HGLA HGLB HGLD	Glioblastoma	Uni-ZAP XR	LP03
HEAA	H. Atrophic Endometrium	Uni-ZAP XR	LP03
HBCA HBCB	H. Lymph node breast Cancer	Uni-ZAP XR	LP03
HPWT	Human Prostate BPH. re-excision	Uni-ZAP XR	LP03
HFVG HFVH HFVI	Fetal Liver. subtraction II	pBS	LP03
HNFI	Human Neutrophils. Activated, re-excision	pBS	LP03
HBMB HBMC HBMD	Human Bone Marrow, re-excision	pBS	LP03
HKML HKMM HKMN	H. Kidney Medulla. re-excision	pBS	LP03
HKIX HKIY	H. Kidney Cortex. subtracted	pBS	LP03
HADT	H. Amygdala Depression. subtracted	pBS	LP03
H6AS	Hl-60. untreated. subtracted	Uni-ZAP XR	LP03
H6ES	HL-60. PMA 4H. subtracted	Uni-ZAP XR	LP03
H6BS	HL-60. RA 4h. Subtracted	Uni-ZAP XR	LP03
H6CS	HL-60. PMA 1d. subtracted	Uni-ZAP XR	LP03
HTXJ HTXK	Activated T-cell(12h)/Thiouridine-re-	Uni-ZAP XR	LP03

Libraries owned by Catalog	Catalog Description	Vector	ATCC Deposit
	excision		
HMSA HMSB HMSC HMSD HMSE HMSF HMSG HMSH HMSI HMSJ HMSK	Monocyte activated	Uni-ZAP XR	LP03
HAGA HAGB HAGC HAGD HAGE HAGF	Human Amygdala	Uni-ZAP XR	LP03
HSRA HSRB HSRE	STROMAL -OSTEOCLASTOMA	Uni-ZAP XR	LP03
HSRD HSRF HSRG HSRH	Human Osteoclastoma Stromal Cells - unamplified	Uni-ZAP XR	LP03
HSQA HSQB HSQC HSQD HSQE HSQF HSQG	Stromal cell TF274	Uni-ZAP XR	LP03
HSKA HSKB HSKC HSKD HSKE HSKF HSKZ	Smooth muscle, serum treated	Uni-ZAP XR	LP03
HSLA HSLB HSLC HSLD HSLE HSLF HSLG	Smooth muscle,control	Uni-ZAP XR	LP03
HSDA HSDD HSDE HSDF HSDG HSDH	Spinal cord	Uni-ZAP XR	LP03
HPWS	Prostate-BPH subtracted II	pBS	LP03
HSKW HSKX HSKY	Smooth Muscle- HASTE normalized	pBS	LP03
HFPB HFPC HFPD	H. Frontal cortex,epileptic;re-excision	Uni-ZAP XR	LP03
HSDI HSDJ HSDK	Spinal Cord, re-excision	Uni-ZAP XR	LP03
HSKN HSKO	Smooth Muscle Serum Treated, Norm	pBS	LP03
HSKG HSKH HSKI	Smooth muscle, serum induced,re-exc	pBS	LP03
HFCA HFCB HFCC HFCD HFCE HFCF	Human Fetal Brain	Uni-ZAP XR	LP04
HPTA HPTB HPTD	Human Pituitary	Uni-ZAP XR	LP04
HTHB HTHC HTHD	Human Thymus	Uni-ZAP XR	LP04
HE6B HE6C HE6D HE6E HE6F HE6G HE6S	Human Whole Six Week Old Embryo	Uni-ZAP XR	LP04
HSSA HSSB HSSC HSSD HSSE HSSF HSSG HSSH HSSI HSSJ HSSK	Human Synovial Sarcoma	Uni-ZAP XR	LP04
HE7T	7 Week Old Early Stage Human, subtracted	Uni-ZAP XR	LP04
HEPA HEPB HEPC	Human Epididymus	Uni-ZAP XR	LP04
HSNA HSNB HSNC HSNM HSNN	Human Synovium	Uni-ZAP XR	LP04
HPFB HPFC HPFD HPFE	Human Prostate Cancer, Stage C fraction	Uni-ZAP XR	LP04
HE2A HE2D HE2E HE2H HE2I HE2M HE2N HE2O	12 Week Old Early Stage Human	Uni-ZAP XR	LP04
HE2B HE2C HE2F HE2G HE2P HE2Q	12 Week Old Early Stage Human, II	Uni-ZAP XR	LP04
HPTS HPTT HPTU	Human Pituitary, subtracted	Uni-ZAP XR	LP04
HAUA HAUB HAUC	Amniotic Cells - TNF induced	Uni-ZAP XR	LP04
HAQA HAQB HAQC HAQD	Amniotic Cells - Primary Culture	Uni-ZAP XR	LP04
HWTA HWTB HWTC	wilm's tumor	Uni-ZAP XR	LP04
HBSD	Bone Cancer, re-excision	Uni-ZAP XR	LP04
HSGB	Salivary gland, re-excision	Uni-ZAP XR	LP04
HSJA HSJB HSJC	Smooth muscle-ILb induced	Uni-ZAP XR	LP04
HSXA HSXB HSXC HSXD	Human Substantia Nigra	Uni-ZAP XR	LP04
HSHA HSHB HSHC	Smooth muscle, IL1b induced	Uni-ZAP XR	LP04
HOUA HOUB HOUC HOUD HOUE	Adipocytes	Uni-ZAP XR	LP04

Libraries owned by Catalog	Catalog Description	Vector	ATCC Deposit
HPWA HPWB HPWC HPWD HPWE	Prostate BPH	Uni-ZAP XR	LP04
HELA HELB HELC HELD HELE HELF HELG HELH	Endothelial cells-control	Uni-ZAP XR	LP04
HEMA HEMB HEMC HEMD HEME HEMF HEMG HEMH	Endothelial-induced	Uni-ZAP XR	LP04
HBIA HBIB HBIC	Human Brain. Striatum	Uni-ZAP XR	LP04
HHSA HHSB HHSC HHSD HHSE	Human Hypothalmus.Schizophrenia	Uni-ZAP XR	LP04
HNGA HNGB HNGC HNGD HNGE HNGF HNGG HNGH HNGI HNGJ	neutrophils control	Uni-ZAP XR	LP04
HNHA HNHB HNHC HNHD HNHE HNHF HNHG HNHH HNHI HNHJ	Neutrophils IL-1 and LPS induced	Uni-ZAP XR	LP04
HSDB HSDC	STRIATUM DEPRESSION	Uni-ZAP XR	LP04
HHPT	Hypothalamus	Uni-ZAP XR	LP04
HSAT HSAU HSAV HSAW HSAX HSAY HSAZ	Anergic T-cell	Uni-ZAP XR	LP04
HBMS HBMT HBMU HBMV HBMW HBMX	Bone marrow	Uni-ZAP XR	LP04
HOEA HOEB HOEC HOED HOEE HOEF HOEJ	Osteoblasts	Uni-ZAP XR	LP04
HAIA HAIB HAIC HAID HAIE HAIF	Epithelial-TNFa and INF induced	Uni-ZAP XR	LP04
HTGA HTGB HTGC HTGD	Apoptotic T-cell	Uni-ZAP XR	LP04
HMCA HMCB HMCC HMCD HMCE	Macrophage-oxLDL	Uni-ZAP XR	LP04
HMAA HMAB HMAC HMAD HMAE HMAF HMAG	Macrophage (GM-CSF treated)	Uni-ZAP XR	LP04
HPHA	Normal Prostate	Uni-ZAP XR	LP04
HPIA HPIB HPIC	LNCAP prostate cell line	Uni-ZAP XR	LP04
HPJA HPJB HPJC	PC3 Prostate cell line	Uni-ZAP XR	LP04
HOSE HOSF HOSG	Human Osteoclastoma. re-excision	Uni-ZAP XR	LP04
HTGE HTGF	Apoptotic T-cell. re-excision	Uni-ZAP XR	LP04
HMAJ HMAK	H Macrophage (GM-CSF treated). re-excision	Uni-ZAP XR	LP04
HACB HACC HACD	Human Adipose Tissue. re-excision	Uni-ZAP XR	LP04
HFPA	H. Frontal Cortex. Epileptic	Uni-ZAP XR	LP04
HFAA HFAB HFAC HFAD HFAE	Alzheimers. spongy change	Uni-ZAP XR	LP04
HFAM	Frontal Lobe. Dementia	Uni-ZAP XR	LP04
HMIA HMIB HMIC	Human Manic Depression Tissue	Uni-ZAP XR	LP04
HTSA HTSE HTSF HTSG HTSH	Human Thymus	pBS	LP05
HPBA HPBB HPBC HPBD HPBE	Human Pineal Gland	pBS	LP05
HSAA HSAB HSAC	HSA 172 Cells	pBS	LP05
HSBA HSBB HSBC HSBM	HSC172 cells	pBS	LP05
HJAA HJAB HJAC HJAD	Jurkat T-cell G1 phase	pBS	LP05
HJBA HJBB HJBC HJBD	Jurkat T-Cell. S phase	pBS	LP05
HAFA HAFB	Aorta endothelial cells + TNF-a	pBS	LP05
HAWA HAWB HAWC	Human White Adipose	pBS	LP05
HTNA HTNB	Human Thyroid	pBS	LP05
HONA	Normal Ovary. Premenopausal	pBS	LP05
HARA HARB	Human Adult Retina	pBS	LP05

Libraries owned by Catalog	Catalog Description	Vector	ATCC Deposit
HLJA HLJB	Human Lung	pCMVSport 1	LP06
HOFM HOFN HOFO	H. Ovarian Tumor, II, OV5232	pCMVSport 2.0	LP07
HOGA HOGB HOGC	OV 10-3-95	pCMVSport 2.0	LP07
HCGL	CD34+cells, II	pCMVSport 2.0	LP07
HDLA	Hodgkin's Lymphoma I	pCMVSport 2.0	LP07
HDTA HDTB HDTC HDTD HDTE	Hodgkin's Lymphoma II	pCMVSport 2.0	LP07
HKAA HKAB HKAC HKAD HKAE HKAF HKAG HKAH	Keratinocyte	pCMVSport2.0	LP07
HCIM	CAPFINDER, Crohn's Disease, lib 2	pCMVSport 2.0	LP07
HKAL	Keratinocyte, lib 2	pCMVSport2.0	LP07
HKAT	Keratinocyte, lib 3	pCMVSport2.0	LP07
HNDA	Nasal polyps	pCMVSport2.0	LP07
HDRA	H. Primary Dendritic Cells,lib 3	pCMVSport2.0	LP07
HOHA HOHB HOHC	Human Osteoblasts II	pCMVSport2.0	LP07
HLDA HLDB HLDC	Liver, Hepatoma	pCMVSport3.0	LP08
HLDN HLDO HLDP	Human Liver, normal	pCMVSport3.0	LP08
HMTA	pBMC stimulated w/ poly I/C	pCMVSport3.0	LP08
HNTA	NTERA2, control	pCMVSport3.0	LP08
HDPA HDPB HDPC HDPD HDPF HDPG HDPH HDPI HDPJ HDPK	Primary Dendritic Cells, lib 1	pCMVSport3.0	LP08
HDPM HDPN HDPO HDPP	Primary Dendritic cells,frac 2	pCMVSport3.0	LP08
HMUA HMUB HMUC	Myoloid Progenitor Cell Line	pCMVSport3.0	LP08
HHEA HHEB HHEC HHED	T Cell helper I	pCMVSport3.0	LP08
HHEM HHEN HHEO HHEP	T cell helper II	pCMVSport3.0	LP08
HEQA HEQB HEQC	Human endometrial stromal cells	pCMVSport3.0	LP08
HJMA HJMB	Human endometrial stromal cells-treated with progesterone	pCMVSport3.0	LP08
HSWA HSWB HSWC	Human endometrial stromal cells-treated with estradiol	pCMVSport3.0	LP08
HSYA HSYB HSYC	Human Thymus Stromal Cells	pCMVSport3.0	LP08
HLWA HLWB HLWC	Human Placenta	pCMVSport3.0	LP08
HRAA HRAB HRAC	Rejected Kidney, lib 4	pCMVSport3.0	LP08
HMTM	PCR, pBMC I/C treated	PCRII	LP09
HMJA	H. Meniingima, M6	pSport 1	LP10
HMKA HMKB HMKC HMKD HMKE	H. Meningima, M1	pSport 1	LP10
HUSG HUSI	Human umbilical vein endothelial cells, IL-4 induced	pSport 1	LP10
HUSX HUSY	Human Umbilical Vein Endothelial Cells, uninduced	pSport 1	LP10
HOFA	Ovarian Tumor I, OV5232	pSport 1	LP10
HCFA HCFB HCFC HCFD	T-Cell PHA 16 hrs	pSport 1	LP10
HCFL HCFM HCFN HCFO	T-Cell PHA 24 hrs	pSport 1	LP10
HADA HADC HADD HADE HADF HADG	Human Adipose	pSport 1	LP10
HOVA HOVB HOVC	Human Ovary	pSport 1	LP10
HTWB HTWC HTWD HTWE HTWF	Resting T-Cell Library,II	pSport 1	LP10

Libraries owned by Catalog	Catalog Description	Vector	ATCC Deposit
HMMA	Spleen metastic melanoma	pSport 1	LP10
HLYA HLYB HLYC HLYD HLYE	Spleen. Chronic lymphocytic leukemia	pSport 1	LP10
HCGA	CD34+ cell. I	pSport 1	LP10
HEOM HEON	Human Eosinophils	pSport 1	LP10
HTDA	Human Tonsil. Lib 3	pSport 1	LP10
HSPA	Salivary Gland. Lib 2	pSport 1	LP10
HCHA HCHB HCHC	Breast Cancer cell line. MDA 36	pSport 1	LP10
HCHM HCHN	Breast Cancer Cell line. angiogenic	pSport 1	LP10
HCIA	Crohn's Disease	pSport 1	LP10
HDAA HDAB HDAC	HEL cell line	pSport 1	LP10
HABA	Human Astrocyte	pSport 1	LP10
HUFA HUFB HUFC	Ulcerative Colitis	pSport 1	LP10
HNTM	NTERA2 + retinoic acid. 14 days	pSport 1	LP10
HDQA	Primary Dendritic cells.CapFinder2. frac 1	pSport 1	LP10
HDQM	Primary Dendritic Cells. CapFinder. frac 2	pSport 1	LP10
HLDX	Human Liver. normal.CapFinder	pSport 1	LP10
HULA HULB HULC	Human Dermal Endothelial Cells.untreated	pSport1	LP10
HUMA	Human Dermal Endothelial cells.treated	pSport1	LP10
HCJA	Human Stromal Endometrial fibroblasts. untreated	pSport1	LP10
HCJM	Human Stromal endometrial fibroblasts. treated w/ estradiol	pSport1	LP10
HEDA	Human Stromal endometrial fibroblasts. treated with progesterone	pSport1	LP10
HFNA	Human ovary tumor cell OV350721	pSport1	LP10
HKGA HKGB HKGC HKGD	Merkel Cells	pSport1	LP10
HISA HISB HISC	Pancreas Islet Cell Tumor	pSport1	LP10
HLSA	Skin. burned	pSport1	LP10
HBZA	Prostate.BPH. Lib 2	pSport 1	LP10
HBZS	Prostate BPH.Lib 2, subtracted	pSport 1	LP10
HFIA HFIB HFIC	Synovial Fibroblasts (control)	pSport 1	LP10
HFIH HFII HFIJ	Synovial hypoxia	pSport 1	LP10
HFIT HFIU HFIV	Synovial IL-1/TNF stimulated	pSport 1	LP10
HGCA	Messangial cell. frac 1	pSport1	LP10
HMVA HMVB HMVC	Bone Marrow Stromal Cell. untreated	pSport1	LP10
HFIX HFIY HFIZ	Synovial Fibroblasts (Il1/TNF). subt	pSport1	LP10
HFOX HFOY HFOZ	Synovial hypoxia-RSF subtracted	pSport1	LP10
HMQA HMQB HMQC HMQD	Human Activated Monocytes	Uni-ZAP XR	LP11
HLIA HLIB HLIC	Human Liver	pCMVSport 1	LP012
HHBA HHBB HHBC HHBD HHBE	Human Heart	pCMVSport 1	LP012
HBBA HBBB	Human Brain	pCMVSport 1	LP012
HLJA HLJB HLJC HLJD HLJE	Human Lung	pCMVSport 1	LP012
HOGA HOGB HOGC	Ovarian Tumor	pCMVSport 2.0	LP012

Libraries owned by Catalog	Catalog Description	Vector	ATCC Deposit
HTJM	Human Tonsils. Lib 2	pCMVSport 2.0	LP012
HAMF HAMG	KMH2	pCMVSport 3.0	LP012
HAJA HAJB HAJC	L428	pCMVSport 3.0	LP012
HWBA HWBB HWBC HWBD HWBE	Dendritic cells. pooled	pCMVSport 3.0	LP012
HWAA HWAB HWAC HWAD HWAE	Human Bone Marrow. treated	pCMVSport 3.0	LP012
HYAA HYAB HYAC	B Cell lymphoma	pCMVSport 3.0	LP012
HWHG HWHH HWHI	Healing groin wound. 6.5 hours post incision	pCMVSport 3.0	LP012
HWHP HWHQ HWHR	Healing groin wound: 7.5 hours post incision	pCMVSport 3.0	LP012
HARM	Healing groin wound - zero hr post-incision (control)	pCMVSport 3.0	LP012
HBIM	Olfactory epithelium: nasalcavity	pCMVSport 3.0	LP012
HWDA	Healing Abdomen wound: 70&90 min post incision	pCMVSport 3.0	LP012
HWEA	Healing Abdomen Wound:15 days post incision	pCMVSport 3.0	LP012
HWJA	Healing Abdomen Wound:21&29 days	pCMVSport 3.0	LP012
HNAL	Human Tongue. frac 2	pSport1	LP012
HMJA	H. Meniingima. M6	pSport1	LP012
HMKA HMKB HMKC HMKD HMKE	H. Meningima. M1	pSport1	LP012
HOFA	Ovarian Tumor I. OV5232	pSport1	LP012
HCFA HCFB HCFC HCFD	T-Cell PHA 16 hrs	pSport1	LP012
HCFL HCFM HCFN HCFO	T-Cell PHA 24 hrs	pSport1	LP012
HMMA HMMB HMMC	Spleen metastic melanoma	pSport1	LP012
HTDA	Human Tonsil. Lib 3	pSport1	LP012
HDBA	Human Fetal Thymus	pSport1	LP012
HDUA	Pericardium	pSport1	LP012
HBZA	Prostate.BPH. Lib 2	pSport1	LP012
HWCA	Larynx tumor	pSport1	LP012
HWKA	Normal lung	pSport1	LP012
HSMB	Bone marrow stroma.treated	pSport1	LP012
HBHM	Normal trachea	pSport1	LP012
HLFC	Human Larynx	pSport1	LP012
HLRB	Siebben Polyposis	pSport1	LP012
HNIA	Mammary Gland	pSport1	LP012
HNJB	Palate carcinoma	pSport1	LP012
HNKA	Palate normal	pSport1	LP012
HMZA	Pharynx carcinoma	pSport1	LP012
HABG	Cheek Carcinoma	pSport1	LP012
HMZM	Pharynx Carcinoma	pSport1	LP012
HDRM	Larynx Carcinoma	pSport1	LP012
HVAA	Pancreas normal PCA4 No	pSport1	LP012
HICA	Tongue carcinoma	pSport1	LP012
HUKA HUKB HUKC HUKD HUKE	Human Uterine Cancer	Lambda ZAP II	LP013
HFFA	Human Fetal Brain. random primed	Lambda ZAP II	LP013
HTUA	Activated T-cell labeled with 4-thioluri	Lambda ZAP II	LP013
HBQA	Early Stage Human Brain. random primed	Lambda ZAP II	LP013

Libraries owned by Catalog	Catalog Description	Vector	ATCC Deposit
HMEB	Human microvascular Endothelial cells, fract. B	Lambda ZAP II	LP013
HUSH	Human Umbilical Vein Endothelial cells, fract. A, re-excision	Lambda ZAP II	LP013
HLQC HLQD	Hepatocellular tumor, re-excision	Lambda ZAP II	LP013
HTWJ HTWK HTWL	Resting T-cell, re-excision	Lambda ZAP II	LP013
HF6S	Human Whole 6 week Old Embryo (II), subt	pBluescript	LP013
HHPS	Human Hippocampus, subtracted	pBluescript	LP013
HL1S	LNCAP, differential expression	pBluescript	LP013
HLHS HLHT	Early Stage Human Lung, Subtracted	pBluescript	LP013
HSUS	Supt cells, cyclohexamide treated, subtracted	pBluescript	LP013
HSUT	Supt cells, cyclohexamide treated, differentially expressed	pBluescript	LP013
HSDS	H. Striatum Depression, subtracted	pBluescript	LP013
HPTZ	Human Pituitary, Subtracted VII	pBluescript	LP013
HSDX	H. Striatum Depression, subt II	pBluescript	LP013
HSDZ	H. Striatum Depression, subt	pBluescript	LP013
HPBA HPBB HPBC HPBD HPBE	Human Pineal Gland	pBluescript SK-	LP013
HRTA	Colorectal Tumor	pBluescript SK-	LP013
HSBA HSBB HSBC HSBM	HSC172 cells	pBluescript SK-	LP013
HJAA HJAB HJAC HJAD	Jurkat T-cell G1 phase	pBluescript SK-	LP013
HJBA HJBB HJBC HJBD	Jurkat T-cell, S1 phase	pBluescript SK-	LP013
HTNA HTNB	Human Thyroid	pBluescript SK-	LP013
HAHA HAHB	Human Adult Heart	Uni-ZAP XR	LP013
HE6A	Whole 6 week Old Embryo	Uni-ZAP XR	LP013
HFCA HFCB HFCC HFCD HFCE	Human Fetal Brain	Uni-ZAP XR	LP013
HFKC HFKD HFKE HFKF HFKG	Human Fetal Kidney	Uni-ZAP XR	LP013
HGBA HGBD HGBE HGBF HGBG	Human Gall Bladder	Uni-ZAP XR	LP013
HPRA HPRB HPRC HPRD	Human Prostate	Uni-ZAP XR	LP013
HTEA HTEB HTEC HTED HTEE	Human Testes	Uni-ZAP XR	LP013
HTTA HTTB HTTC HTTD HTTE	Human Testes Tumor	Uni-ZAP XR	LP013
HYBA HYBB	Human Fetal Bone	Uni-ZAP XR	LP013
HFLA	Human Fetal Liver	Uni-ZAP XR	LP013
HHFB HHFC HHFD HHFE HHFF	Human Fetal Heart	Uni-ZAP XR	LP013
HUVB HUVC HUVD HUVE	Human Umbilical Vein, End. remake	Uni-ZAP XR	LP013
HTHB HTHC HTHD	Human Thymus	Uni-ZAP XR	LP013
HSTA HSTB HSTC HSTD	Human Skin Tumor	Uni-ZAP XR	LP013
HTAA HTAB HTAC HTAD HTAE	Human Activated T-cells	Uni-ZAP XR	LP013
HFEA HFEB HFEC	Human Fetal Epithelium (skin)	Uni-ZAP XR	LP013
HJPA HJPB HJPC HJPD	Human Jurkat Membrane Bound Polysomes	Uni-ZAP XR	LP013
HESA	Human Epithelioid Sarcoma	Uni-ZAP XR	LP013
HALS	Human Adult Liver, Subtracted	Uni-ZAP XR	LP013
HFTA HFTB HFTC HFTD	Human Fetal Dura Mater	Uni-ZAP XR	LP013
HCAA HCAB HCAC	Cem cells, cyclohexamide treated	Uni-ZAP XR	LP013
HRGA HRGB HRGC HRGD	Raji Cells, cyclohexamide treated	Uni-ZAP XR	LP013
HE9A HE9B HE9C HE9D HE9E	Nine Week Old Early Stage Human	Uni-ZAP XR	LP013

Libraries owned by Catalog	Catalog Description	Vector	ATCC Deposit
HSFA	Human Fibrosarcoma	Uni-ZAP XR	LP013
HATA HATB HATC HATD HATE	Human Adrenal Gland Tumor	Uni-ZAP XR	LP013
HTRA	Human Trachea Tumor	Uni-ZAP XR	LP013
HE2A HE2D HE2E HE2H HE2I	12 Week Old Early Stage Human	Uni-ZAP XR	LP013
HE2B HE2C HE2F HE2G HE2P	12 Week Old Early Stage Human, II	Uni-ZAP XR	LP013
HNEA HNEB HNEC HNED HNEE	Human Neutrophil	Uni-ZAP XR	LP013
HBGA	Human Primary Breast Cancer	Uni-ZAP XR	LP013
HPTS HPTT HPTU	Human Pituitary, subtracted	Uni-ZAP XR	LP013
HMQA HMQB HMQC HMQD	Human Activated Monocytes	Uni-ZAP XR	LP013
HOAA HOAB HOAC	Human Osteosarcoma	Uni-ZAP XR	LP013
HTOA HTOD HTOE HTOF HTOG	human tonsils	Uni-ZAP XR	LP013
HMGB	Human OB MG63 control fraction I	Uni-ZAP XR	LP013
HOPB	Human OB HOS control fraction I	Uni-ZAP XR	LP013
HOQB	Human OB HOS treated (1 nM E2) fraction I	Uni-ZAP XR	LP013
HAUA HAUB HAUC	Amniotic Cells - TNF induced	Uni-ZAP XR	LP013
HAQA HAQB HAQC HAQD	Amniotic Cells - Primary Culture	Uni-ZAP XR	LP013
HROA HROC	HUMAN STOMACH	Uni-ZAP XR	LP013
HBJA HBJB HBJC HBJD HBJE	HUMAN B CELL LYMPHOMA	Uni-ZAP XR	LP013
HODA HODB HODC HODD	human ovarian cancer	Uni-ZAP XR	LP013
HCPA	Corpus Callosum	Uni-ZAP XR	LP013
HSOA	stomach cancer (human)	Uni-ZAP XR	LP013
HERA	SKIN	Uni-ZAP XR	LP013
HMDA	Brain-medulloblastoma	Uni-ZAP XR	LP013
HGLA HGLB HGLD	Glioblastoma	Uni-ZAP XR	LP013
HWTA HWTB HWTC	wilm's tumor	Uni-ZAP XR	LP013
HEAA	H. Atrophic Endometrium	Uni-ZAP XR	LP013
HAPN HAPO HAPP HAPQ HAPR	Human Adult Pulmonary;re-excision	Uni-ZAP XR	LP013
HLTG HLTH	Human T-cell lymphoma;re-excision	Uni-ZAP XR	LP013
HAHC HAHD HAHE	Human Adult Heart;re-excision	Uni-ZAP XR	LP013
HAGA HAGB HAGC HAGD HAGE	Human Amygdala	Uni-ZAP XR	LP013
HSJA HSJB HSJC	Smooth muscle-ILb induced	Uni-ZAP XR	LP013
HSHA HSHB HSHC	Smooth muscle, IL1b induced	Uni-ZAP XR	LP013
HPWA HPWB HPWC HPWD HPWE	Prostate BPH	Uni-ZAP XR	LP013
HPIA HPIB HPIC	LNCAP prostate cell line	Uni-ZAP XR	LP013
HPJA HPJB HPJC	PC3 Prostate cell line	Uni-ZAP XR	LP013
HBTA	Bone Marrow Stroma, TNF&LPS ind	Uni-ZAP XR	LP013
HMCF HMCG HMCH HMCI HMCJ	Macrophage-oxLDL; re-excision	Uni-ZAP XR	LP013
HAGG HAGH HAGI	Human Amygdala;re-excision	Uni-ZAP XR	LP013
HACA	H. Adipose Tissue	Uni-ZAP XR	LP013
HKFB	K562 + PMA (36 hrs),re-excision	ZAP Express	LP013
HCWT HCWU HCWV	CD34 positive cells (cord blood),re-ex	ZAP Express	LP013
HBWA	Whole brain	ZAP Express	LP013
HBXA HBXB HBXC HBXD	Human Whole Brain #2 - Oligo dT > 1.5Kb	ZAP Express	LP013
HAVM	Temporal cortex-Alzheizmer	pT-Adv	LP014
HAVT	Hippocampus, Alzheimer Subtracted	pT-Adv	LP014

Libraries owned by Catalog	Catalog Description	Vector	ATCC Deposit
HHAS	CHME Cell Line	Uni-ZAP XR	LP014
HAJR	Larynx normal	pSport 1	LP014
HWLE HWLF HWLG HWLH	Colon Normal	pSport 1	LP014
HCRM HCRN HCRO	Colon Carcinoma	pSport 1	LP014
HWLI HWLJ HWLK	Colon Normal	pSport 1	LP014
HWLQ HWLR HWLS HWLT	Colon Tumor	pSport 1	LP014
HBFM	Gastrocnemius Muscle	pSport 1	LP014
HBOD HBOE	Quadriceps Muscle	pSport 1	LP014
HBKD HBKE	Soleus Muscle	pSport 1	LP014
HCCM	Pancreatic Langerhans	pSport 1	LP014
HWGA	Larynx carcinoma	pSport 1	LP014
HWGM HWGN	Larynx carcinoma	pSport 1	LP014
HWLA HWLB HWLC	Normal colon	pSport 1	LP014
HWLM HWLN	Colon Tumor	pSport 1	LP014
HVAM HVAN HVAO	Pancreas Tumor	pSport 1	LP014
HWGQ	Larynx carcinoma	pSport 1	LP014
HAQM HAQN	Salivary Gland	pSport 1	LP014
HASM	Stomach: normal	pSport 1	LP014
HBCM	Uterus: normal	pSport 1	LP014
HCDM	Testis: normal	pSport 1	LP014
HDJM	Brain: normal	pSport 1	LP014
HEFM	Adrenal Gland,normal	pSport 1	LP014
HBAA	Rectum normal	pSport 1	LP014
HFDM	Rectum tumour	pSport 1	LP014
HGAM	Colon, normal	pSport 1	LP014
HHMM	Colon, tumour	pSport 1	LP014
HCLB HCLC	Human Lung Cancer	Lambda Zap II	LP015
HRLA	L1 Cell line	ZAP Express	LP015
HHAM	Hypothalamus, Alzheimer's	pCMVSport 3.0	LP015
HKBA	Ku 812F Basophils Line	pSport 1	LP015
HS2S	Saos2, Dexamethosome Treated	pSport 1	LP016
HA5A	Lung Carcinoma A549 TNFalpha activated	pSport 1	LP016
HTFM	TF-1 Cell Line GM-CSF Treated	pSport 1	LP016
HYAS	Thyroid Tumour	pSport 1	LP016
HUTS	Larynx Normal	pSport 1	LP016
HXOA	Larynx Tumor	pSport 1	LP016
HEAH	Ea.hy.926 cell line	pSport 1	LP016
HINA	Adenocarcinoma Human	pSport 1	LP016
HRMA	Lung Mesothelium	pSport 1	LP016
HLCL	Human Pre-Differentiated Adipocytes	Uni-Zap XR	LP017
HS2A	Saos2 Cells	pSport 1	LP020
HS2I	Saos2 Cells: Vitamin D3 Treated	pSport 1	LP020
HUCM	CHME Cell Line, untreated	pSport 1	LP020
HEPN	Aryepiglottis Normal	pSport 1	LP020
HPSN	Sinus Piniformis Tumour	pSport 1	LP020
HNSA	Stomach Normal	pSport 1	LP020

Libraries owned by Catalog	Catalog Description	Vector	ATCC Deposit
HNSM	Stomach Tumour	pSport 1	LP020
HNLA	Liver Normal Met5No	pSport 1	LP020
HUTA	Liver Tumour Met 5 Tu	pSport 1	LP020
HOCN	Colon Normal	pSport 1	LP020
HOCT	Colon Tumor	pSport 1	LP020
HTNT	Tongue Tumour	pSport 1	LP020
HLXN	Larynx Normal	pSport 1	LP020
HLXT	Larynx Tumour	pSport 1	LP020
HTYN	Thymus	pSport 1	LP020
HPLN	Placenta	pSport 1	LP020
HTNG	Tongue Normal	pSport 1	LP020
HZAA	Thyroid Normal (SDCA2 No)	pSport 1	LP020
HWES	Thyroid Thyroiditis	pSport 1	LP020
HFHD	Ficolled Human Stromal Cells, 5Fu treated	pTrip1Ex2	LP021
HFHM,HFHN	Ficolled Human Stromal Cells, Untreated	pTrip1Ex2	LP021
HPCI	Hep G2 Cells, lambda library	lambda Zap-CMV XR	LP021
HBCA,HBCB,HBCC	H. Lymph node breast Cancer	Uni-ZAP XR	LP021
HCOK	Chondrocytes	pSPORT1	LP022
HDCA, HDCB, HDCC	Dendritic Cells From CD34 Cells	pSPORT1	LP022
HDMA, HDMB	CD40 activated monocyte dendritic cells	pSPORT1	LP022
HDDM, HDDN, HDDO	LPS activated derived dendritic cells	pSPORT1	LP022
HPCR	Hep G2 Cells, PCR library	lambda Zap-CMV XR	LP022
HAAA, HAAB, HAAC	Lung, Cancer (4005313A3): Invasive Poorly Differentiated Lung Adenocarcinoma	pSPORT1	LP022
HIPA, HIPB, HIPC	Lung, Cancer (4005163 B7): Invasive, Poorly Diff. Adenocarcinoma, Metastatic	pSPORT1	LP022
HOOH, HOOI	Ovary, Cancer: (4004562 B6) Papillary Serous Cystic Neoplasm, Low Malignant Pot	pSPORT1	LP022
HIDA	Lung, Normal: (4005313 B1)	pSPORT1	LP022
HUJA,HUJB,HUJC,HUJD,HUJE	B-Cells	pCMVSport 3.0	LP022
HNOA,HNOB,HNOC,HNOD	Ovary, Normal: (9805C040R)	pSPORT1	LP022
HNLM	Lung, Normal: (4005313 B1)	pSPORT1	LP022
HSCL	Stromal Cells	pSPORT1	LP022
HAAX	Lung, Cancer: (4005313 A3) Invasive Poorly-differentiated Metastatic lung adenocarcinoma	pSPORT1	LP022
HUUA,HUUB,HUUC,HUUD	B-cells (unstimulated)	pTrip1Ex2	LP022
HWWA,HWWB,HWWC,HWWD,HWWE,HWWF,HWWG	B-cells (stimulated)	pSPORT1	LP022
HCCC	Colon, Cancer: (9808C064R)	pCMVSport 3.0	LP023
HPDO HPDP HPDQ HPDR HPD	Ovary, Cancer (9809C332): Poorly differentiated adenocarcinoma	pSport 1	LP023
HPCO HPCP HPCQ HPCT	Ovary, Cancer (15395A1F): Grade II Papillary Carcinoma	pSport 1	LP023
HOCM HOCO HOCP HOCQ	Ovary, Cancer: (15799A1F) Poorly differentiated carcinoma	pSport 1	LP023

Libraries owned by Catalog	Catalog Description	Vector	ATCC Deposit
HCBM HCBN HCBO	Breast. Cancer: (4004943 A5)	pSport 1	LP023
HNBT HNBU HNBV	Breast. Normal: (4005522B2)	pSport 1	LP023
HBCP HBCQ	Breast. Cancer: (4005522 A2)	pSport 1	LP023
HBCJ	Breast. Cancer: (9806C012R)	pSport 1	LP023
HSAM HSAN	Stromal cells 3.88	pSport 1	LP023
HVCA HVCB HVCC HVCD	Ovary. Cancer: (4004332 A2)	pSport 1	LP023
HSCK HSEN HSEO	Stromal cells (HBM3.18)	pSport 1	LP023
HSCP HSCQ	stromal cell clone 2.5	pSport 1	LP023
HUXA	Breast Cancer: (4005385 A2)	pSport 1	LP023
HCOM HCON HCOO HCOP HCOQ	Ovary. Cancer (4004650 A3): Well-Differentiated Micropapillary Serous Carcinoma	pSport 1	LP023
HBNM	Breast. Cancer: (9802C020E)	pSport 1	LP023
HVVA HVVB HVVC HVVD HVVE	Human Bone Marrow. treated	pSport 1	LP023

Two approaches can be used to isolate a particular clone from the deposited sample of plasmid DNAs cited for that clone in Table 5. First, a plasmid is directly isolated by screening the clones using a polynucleotide probe corresponding to the nucleotide sequence of SEQ ID NO:X.

Particularly, a specific polynucleotide with 30-40 nucleotides is synthesized using an Applied Biosystems DNA synthesizer according to the sequence reported. The oligonucleotide is labeled, for instance, with ^{32}P-γ-ATP using T4 polynucleotide kinase and purified according to routine methods. (E.g., Maniatis et al., Molecular Cloning: A Laboratory Manual, Cold Spring Harbor Press, Cold Spring, NY (1982).) The plasmid mixture is transformed into a suitable host, as indicated above (such as XL-1 Blue (Stratagene)) using techniques known to those of skill in the art, such as those provided by the vector supplier or in related publications or patents cited above. The transformants are plated on 1.5% agar plates (containing the appropriate selection agent, e.g., ampicillin) to a density of about 150 transformants (colonies) per plate. These plates are screened using Nylon membranes according to routine methods for bacterial colony screening (e.g., Sambrook et al., Molecular Cloning: A Laboratory Manual, 2nd Edit., (1989), Cold Spring Harbor Laboratory Press, pages 1.93 to 1.104), or other techniques known to those of skill in the art.

Alternatively, two primers of 17-20 nucleotides derived from both ends of the nucleotide sequence of SEQ ID NO:X are synthesized and used to amplify the desired cDNA using the deposited cDNA plasmid as a template. The polymerase chain reaction is carried out under routine conditions, for instance, in 25 μl of reaction mixture with 0.5 ug of the above cDNA template. A convenient reaction mixture is 1.5-5 mM $MgCl_2$, 0.01% (w/v) gelatin, 20 μM each of dATP, dCTP, dGTP, dTTP, 25 pmol of each primer and 0.25 Unit of Taq polymerase. Thirty five cycles of PCR (denaturation at 94°C for 1 min; annealing at 55°C for 1 min; elongation at 72°C for 1 min) are performed with a Perkin-Elmer Cetus automated thermal cycler. The amplified product is analyzed by agarose gel electrophoresis and the DNA band with expected molecular weight is excised and purified. The PCR product is verified to be the selected sequence by subcloning and sequencing the DNA product.

Several methods are available for the identification of the 5' or 3' non-coding portions of a gene which may not be present in the deposited clone. These methods include but are not

limited to, filter probing, clone enrichment using specific probes, and protocols similar or identical to 5' and 3' "RACE" protocols which are well known in the art. For instance, a method similar to 5' RACE is available for generating the missing 5' end of a desired full-length transcript. (Fromont-Racine et al., Nucleic Acids Res. 21(7):1683-1684 (1993).)

Briefly, a specific RNA oligonucleotide is ligated to the 5' ends of a population of RNA presumably containing full-length gene RNA transcripts. A primer set containing a primer specific to the ligated RNA oligonucleotide and a primer specific to a known sequence of the gene of interest is used to PCR amplify the 5' portion of the desired full-length gene. This amplified product may then be sequenced and used to generate the full length gene.

This above method starts with total RNA isolated from the desired source, although poly-A+ RNA can be used. The RNA preparation can then be treated with phosphatase if necessary to eliminate 5' phosphate groups on degraded or damaged RNA which may interfere with the later RNA ligase step. The phosphatase should then be inactivated and the RNA treated with tobacco acid pyrophosphatase in order to remove the cap structure present at the 5' ends of messenger RNAs. This reaction leaves a 5' phosphate group at the 5' end of the cap cleaved RNA which can then be ligated to an RNA oligonucleotide using T4 RNA ligase.

This modified RNA preparation is used as a template for first strand cDNA synthesis using a gene specific oligonucleotide. The first strand synthesis reaction is used as a template for PCR amplification of the desired 5' end using a primer specific to the ligated RNA oligonucleotide and a primer specific to the known sequence of the gene of interest. The resultant product is then sequenced and analyzed to confirm that the 5' end sequence belongs to the desired gene.

Example 2: Isolation of Genomic Clones Corresponding to a Polynucleotide

A human genomic P1 library (Genomic Systems, Inc.) is screened by PCR using primers selected for the sequence corresponding to SEQ ID NO:X, according to the method described in Example 1. (See also. Sambrook.)

Example 3: Tissue specific expression analysis

The Human Genome Sciences, Inc. (HGS) database is derived from sequencing tissue specific cDNA libraries. Libraries generated from a particular tissue are selected and the specific tissue expression pattern of EST groups or assembled contigs within these libraries is determined by comparison of the expression patterns of those groups or contigs within the entire database. ESTs which show tissue specific expression are selected.

The original clone from which the specific EST sequence was generated, is obtained from the catalogued library of clones and the insert amplified by PCR using methods known in the art. The PCR product is denatured then transferred in 96 well format to a nylon membrane (Schleicher and Scheull) generating an array filter of tissue specific clones. Housekeeping genes, maize genes, and known tissue specific genes are included on the filters. These targets can be used in signal normalization and to validate assay sensitivity. Additional targets are included to monitor probe length and specificity of hybridization.

Radioactively labeled hybridization probes are generated by first strand cDNA synthesis per the manufacturer's instructions (Life Technologies) from mRNA/RNA samples prepared from the specific tissue being analyzed. The hybridization probes are purified by gel exclusion chromatography, quantitated, and hybridized with the array filters in hybridization bottles at 65°C overnight. The filters are washed under stringent conditions and signals are captured using a Fuji phosphorimager.

Data is extracted using AIS software and following background subtraction, signal normalization is performed. This includes a normalization of filter-wide expression levels between different experimental runs. Genes that are differentially expressed in the tissue of interest are identified and the full length sequence of these clones is generated.

Example 4: Chromosomal Mapping of the Polynucleotides

An oligonucleotide primer set is designed according to the sequence at the 5' end of SEQ ID NO:X. This primer preferably spans about 100 nucleotides. This primer set is then used in a polymerase chain reaction under the following set of conditions : 30 seconds, 95°C; 1 minute, 56°C; 1 minute, 70°C. This cycle is repeated 32 times followed by one 5 minute

cycle at 70°C. Human, mouse, and hamster DNA is used as template in addition to a somatic cell hybrid panel containing individual chromosomes or chromosome fragments (Bios, Inc). The reactions is analyzed on either 8% polyacrylamide gels or 3.5 % agarose gels. Chromosome mapping is determined by the presence of an approximately 100 bp PCR fragment in the particular somatic cell hybrid.

Example 5: Bacterial Expression of a Polypeptide

A polynucleotide encoding a polypeptide of the present invention is amplified using PCR oligonucleotide primers corresponding to the 5' and 3' ends of the DNA sequence, as outlined in Example 1, to synthesize insertion fragments. The primers used to amplify the cDNA insert should preferably contain restriction sites. such as BamHI and XbaI, at the 5' end of the primers in order to clone the amplified product into the expression vector. For example, BamHI and XbaI correspond to the restriction enzyme sites on the bacterial expression vector pQE-9. (Qiagen, Inc., Chatsworth. CA). This plasmid vector encodes antibiotic resistance (Amp^r), a bacterial origin of replication (ori), an IPTG-regulatable promoter/operator (P/O), a ribosome binding site (RBS), a 6-histidine tag (6-His), and restriction enzyme cloning sites.

The pQE-9 vector is digested with BamHI and XbaI and the amplified fragment is ligated into the pQE-9 vector maintaining the reading frame initiated at the bacterial RBS. The ligation mixture is then used to transform the E. coli strain M15/rep4 (Qiagen, Inc.) which contains multiple copies of the plasmid pREP4, which expresses the lacI repressor and also confers kanamycin resistance (Kan^r). Transformants are identified by their ability to grow on LB plates and ampicillin/kanamycin resistant colonies are selected. Plasmid DNA is isolated and confirmed by restriction analysis.

Clones containing the desired constructs are grown overnight (O/N) in liquid culture in LB media supplemented with both Amp (100 ug/ml) and Kan (25 ug/ml). The O/N culture is used to inoculate a large culture at a ratio of 1:100 to 1:250. The cells are grown to an optical density 600 ($O.D.^{600}$) of between 0.4 and 0.6. IPTG (Isopropyl-B-D-thiogalacto pyranoside) is then added to a final concentration of 1 mM. IPTG induces by inactivating the lacI repressor, clearing the P/O leading to increased gene expression.

Cells are grown for an extra 3 to 4 hours. Cells are then harvested by centrifugation (20 mins at 6000Xg). The cell pellet is solubilized in the chaotropic agent 6 Molar Guanidine HCl by stirring for 3-4 hours at 4°C. The cell debris is removed by centrifugation, and the supernatant containing the polypeptide is loaded onto a nickel-nitrilo-tri-acetic acid ("Ni-NTA") affinity resin column (available from QIAGEN, Inc., *supra*). Proteins with a 6 x His tag bind to the Ni-NTA resin with high affinity and can be purified in a simple one-step procedure (for details see: The QIAexpressionist (1995) QIAGEN, Inc., *supra*).

Briefly, the supernatant is loaded onto the column in 6 M guanidine-HCl, pH 8, the column is first washed with 10 volumes of 6 M guanidine-HCl, pH 8, then washed with 10 volumes of 6 M guanidine-HCl pH 6, and finally the polypeptide is eluted with 6 M guanidine-HCl, pH 5.

The purified protein is then renatured by dialyzing it against phosphate-buffered saline (PBS) or 50 mM Na-acetate, pH 6 buffer plus 200 mM NaCl. Alternatively, the protein can be successfully refolded while immobilized on the Ni-NTA column. The recommended conditions are as follows: renature using a linear 6M-1M urea gradient in 500 mM NaCl, 20% glycerol, 20 mM Tris/HCl pH 7.4, containing protease inhibitors. The renaturation should be performed over a period of 1.5 hours or more. After renaturation the proteins are eluted by the addition of 250 mM immidazole. Immidazole is removed by a final dialyzing step against PBS or 50 mM sodium acetate pH 6 buffer plus 200 mM NaCl. The purified protein is stored at 4° C or frozen at -80° C.

In addition to the above expression vector, the present invention further includes an expression vector comprising phage operator and promoter elements operatively linked to a polynucleotide of the present invention, called pHE4a. (ATCC Accession Number 209645, deposited on February 25, 1998.) This vector contains: 1) a neomycinphosphotransferase gene as a selection marker, 2) an E. coli origin of replication, 3) a T5 phage promoter sequence, 4) two lac operator sequences, 5) a Shine-Delgarno sequence, and 6) the lactose operon repressor gene (lacIq). The origin of replication (oriC) is derived from pUC19 (LTI, Gaithersburg, MD). The promoter sequence and operator sequences are made synthetically.

DNA can be inserted into the pHEa by restricting the vector with NdeI and XbaI, BamHI, XhoI, or Asp718, running the restricted product on a gel, and isolating the larger fragment (the stuffer fragment should be about 310 base pairs). The DNA insert is generated according to the PCR protocol described in Example 1, using PCR primers having restriction

sites for NdeI (5' primer) and XbaI, BamHI, XhoI, or Asp718 (3' primer). The PCR insert is gel purified and restricted with compatible enzymes. The insert and vector are ligated according to standard protocols.

The engineered vector could easily be substituted in the above protocol to express protein in a bacterial system.

Example 6: Purification of a Polypeptide from an Inclusion Body

The following alternative method can be used to purify a polypeptide expressed in *E coli* when it is present in the form of inclusion bodies. Unless otherwise specified, all of the following steps are conducted at 4-10°C.

Upon completion of the production phase of the *E. coli* fermentation, the cell culture is cooled to 4-10°C and the cells harvested by continuous centrifugation at 15,000 rpm (Heraeus Sepatech). On the basis of the expected yield of protein per unit weight of cell paste and the amount of purified protein required, an appropriate amount of cell paste, by weight, is suspended in a buffer solution containing 100 mM Tris, 50 mM EDTA, pH 7.4. The cells are dispersed to a homogeneous suspension using a high shear mixer.

The cells are then lysed by passing the solution through a microfluidizer (Microfuidics, Corp. or APV Gaulin, Inc.) twice at 4000-6000 psi. The homogenate is then mixed with NaCl solution to a final concentration of 0.5 M NaCl, followed by centrifugation at 7000 xg for 15 min. The resultant pellet is washed again using 0.5M NaCl, 100 mM Tris, 50 mM EDTA, pH 7.4.

The resulting washed inclusion bodies are solubilized with 1.5 M guanidine hydrochloride (GuHCl) for 2-4 hours. After 7000 xg centrifugation for 15 min., the pellet is discarded and the polypeptide containing supernatant is incubated at 4°C overnight to allow further GuHCl extraction.

Following high speed centrifugation (30,000 xg) to remove insoluble particles, the GuHCl solubilized protein is refolded by quickly mixing the GuHCl extract with 20 volumes of buffer containing 50 mM sodium, pH 4.5, 150 mM NaCl, 2 mM EDTA by vigorous stirring. The refolded diluted protein solution is kept at 4°C without mixing for 12 hours prior to further purification steps.

To clarify the refolded polypeptide solution, a previously prepared tangential filtration unit equipped with 0.16 μm membrane filter with appropriate surface area (e.g., Filtron), equilibrated with 40 mM sodium acetate, pH 6.0 is employed. The filtered sample is loaded onto a cation exchange resin (e.g., Poros HS-50, Perseptive Biosystems). The column is washed with 40 mM sodium acetate, pH 6.0 and eluted with 250 mM, 500 mM, 1000 mM, and 1500 mM NaCl in the same buffer, in a stepwise manner. The absorbance at 280 nm of the effluent is continuously monitored. Fractions are collected and further analyzed by SDS-PAGE.

Fractions containing the polypeptide are then pooled and mixed with 4 volumes of water. The diluted sample is then loaded onto a previously prepared set of tandem columns of strong anion (Poros HQ-50, Perseptive Biosystems) and weak anion (Poros CM-20, Perseptive Biosystems) exchange resins. The columns are equilibrated with 40 mM sodium acetate, pH 6.0. Both columns are washed with 40 mM sodium acetate, pH 6.0, 200 mM NaCl. The CM-20 column is then eluted using a 10 column volume linear gradient ranging from 0.2 M NaCl, 50 mM sodium acetate, pH 6.0 to 1.0 M NaCl, 50 mM sodium acetate, pH 6.5. Fractions are collected under constant A_{280} monitoring of the effluent. Fractions containing the polypeptide (determined, for instance, by 16% SDS-PAGE) are then pooled.

The resultant polypeptide should exhibit greater than 95% purity after the above refolding and purification steps. No major contaminant bands should be observed from Commassie blue stained 16% SDS-PAGE gel when 5 μg of purified protein is loaded. The purified protein can also be tested for endotoxin/LPS contamination, and typically the LPS content is less than 0.1 ng/ml according to LAL assays.

Example 7: Cloning and Expression of a Polypeptide in a Baculovirus Expression System

In this example, the plasmid shuttle vector pA2 is used to insert a polynucleotide into a baculovirus to express a polypeptide. This expression vector contains the strong polyhedrin promoter of the *Autographa californica* nuclear polyhedrosis virus (AcMNPV) followed by convenient restriction sites such as BamHI, Xba I and Asp718. The polyadenylation site of the simian virus 40 ("SV40") is used for efficient polyadenylation. For easy selection of recombinant virus, the plasmid contains the beta-galactosidase gene from *E. coli* under control of a weak Drosophila promoter in the same orientation, followed by the

polyadenylation signal of the polyhedrin gene. The inserted genes are flanked on both sides by viral sequences for cell-mediated homologous recombination with wild-type viral DNA to generate a viable virus that express the cloned polynucleotide.

Many other baculovirus vectors can be used in place of the vector above, such as pAc373, pVL941, and pAcIM1, as one skilled in the art would readily appreciate, as long as the construct provides appropriately located signals for transcription, translation, secretion and the like, including a signal peptide and an in-frame AUG as required. Such vectors are described, for instance, in Luckow et al., Virology 170:31-39 (1989).

Specifically, the cDNA sequence contained in the deposited clone, including the AUG initiation codon, is amplified using the PCR protocol described in Example 1. If a naturally occurring signal sequence is used to produce the polypeptide of the present invention, the pA2 vector does not need a second signal peptide. Alternatively, the vector can be modified (pA2 GP) to include a baculovirus leader sequence, using the standard methods described in Summers et al., "A Manual of Methods for Baculovirus Vectors and Insect Cell Culture Procedures," Texas Agricultural Experimental Station Bulletin No. 1555 (1987).

The amplified fragment is isolated from a 1% agarose gel using a commercially available kit ("Geneclean," BIO 101 Inc., La Jolla, Ca.). The fragment then is digested with appropriate restriction enzymes and again purified on a 1% agarose gel.

The plasmid is digested with the corresponding restriction enzymes and optionally, can be dephosphorylated using calf intestinal phosphatase, using routine procedures known in the art. The DNA is then isolated from a 1% agarose gel using a commercially available kit ("Geneclean" BIO 101 Inc., La Jolla, Ca.).

The fragment and the dephosphorylated plasmid are ligated together with T4 DNA ligase. *E. coli* HB101 or other suitable *E. coli* hosts such as XL-1 Blue (Stratagene Cloning Systems, La Jolla, CA) cells are transformed with the ligation mixture and spread on culture plates. Bacteria containing the plasmid are identified by digesting DNA from individual colonies and analyzing the digestion product by gel electrophoresis. The sequence of the cloned fragment is confirmed by DNA sequencing.

Five µg of a plasmid containing the polynucleotide is co-transfected with 1.0 µg of a commercially available linearized baculovirus DNA ("BaculoGold™ baculovirus DNA", Pharmingen, San Diego, CA), using the lipofection method described by Felgner et al., Proc.

Natl. Acad. Sci. USA 84:7413-7417 (1987). One μg of BaculoGold™ virus DNA and 5 μg of the plasmid are mixed in a sterile well of a microtiter plate containing 50 μl of serum-free Grace's medium (Life Technologies Inc., Gaithersburg, MD). Afterwards, 10 μl Lipofectin plus 90 μl Grace's medium are added, mixed and incubated for 15 minutes at room temperature. Then the transfection mixture is added drop-wise to Sf9 insect cells (ATCC CRL 1711) seeded in a 35 mm tissue culture plate with 1 ml Grace's medium without serum. The plate is then incubated for 5 hours at 27° C. The transfection solution is then removed from the plate and 1 ml of Grace's insect medium supplemented with 10% fetal calf serum is added. Cultivation is then continued at 27° C for four days.

After four days the supernatant is collected and a plaque assay is performed, as described by Summers and Smith, *supra*. An agarose gel with "Blue Gal" (Life Technologies Inc., Gaithersburg) is used to allow easy identification and isolation of gal-expressing clones, which produce blue-stained plaques. (A detailed description of a "plaque assay" of this type can also be found in the user's guide for insect cell culture and baculovirology distributed by Life Technologies Inc., Gaithersburg, page 9-10.) After appropriate incubation, blue stained plaques are picked with the tip of a micropipettor (e.g., Eppendorf). The agar containing the recombinant viruses is then resuspended in a microcentrifuge tube containing 200 μl of Grace's medium and the suspension containing the recombinant baculovirus is used to infect Sf9 cells seeded in 35 mm dishes. Four days later the supernatants of these culture dishes are harvested and then they are stored at 4° C.

To verify the expression of the polypeptide, Sf9 cells are grown in Grace's medium supplemented with 10% heat-inactivated FBS. The cells are infected with the recombinant baculovirus containing the polynucleotide at a multiplicity of infection ("MOI") of about 2. If radiolabeled proteins are desired, 6 hours later the medium is removed and is replaced with SF900 II medium minus methionine and cysteine (available from Life Technologies Inc., Rockville, MD). After 42 hours, 5 μCi of ^{35}S-methionine and 5 μCi ^{35}S-cysteine (available from Amersham) are added. The cells are further incubated for 16 hours and then are harvested by centrifugation. The proteins in the supernatant as well as the intracellular proteins are analyzed by SDS-PAGE followed by autoradiography (if radiolabeled).

Microsequencing of the amino acid sequence of the amino terminus of purified protein may be used to determine the amino terminal sequence of the produced protein.

Example 8: Expression of a Polypeptide in Mammalian Cells

The polypeptide of the present invention can be expressed in a mammalian cell. A typical mammalian expression vector contains a promoter element, which mediates the initiation of transcription of mRNA, a protein coding sequence, and signals required for the termination of transcription and polyadenylation of the transcript. Additional elements include enhancers, Kozak sequences and intervening sequences flanked by donor and acceptor sites for RNA splicing. Highly efficient transcription is achieved with the early and late promoters from SV40, the long terminal repeats (LTRs) from Retroviruses, e.g., RSV, HTLVI, HIVI and the early promoter of the cytomegalovirus (CMV). However, cellular elements can also be used (e.g., the human actin promoter).

Suitable expression vectors for use in practicing the present invention include, for example, vectors such as pSVL and pMSG (Pharmacia, Uppsala, Sweden), pRSVcat (ATCC 37152), pSV2dhfr (ATCC 37146), pBC12MI (ATCC 67109), pCMVSport 2.0, and pCMVSport 3.0. Mammalian host cells that could be used include, human Hela, 293, H9 and Jurkat cells, mouse NIH3T3 and C127 cells, Cos 1, Cos 7 and CV1, quail QC1-3 cells, mouse L cells and Chinese hamster ovary (CHO) cells.

Alternatively, the polypeptide can be expressed in stable cell lines containing the polynucleotide integrated into a chromosome. The co-transfection with a selectable marker such as DHFR, gpt, neomycin, hygromycin allows the identification and isolation of the transfected cells.

The transfected gene can also be amplified to express large amounts of the encoded protein. The DHFR (dihydrofolate reductase) marker is useful in developing cell lines that carry several hundred or even several thousand copies of the gene of interest. (See, e.g., Alt, F. W., et al., J. Biol. Chem. 253:1357-1370 (1978); Hamlin, J. L. and Ma, C., Biochem. et Biophys. Acta, 1097:107-143 (1990); Page, M. J. and Sydenham, M. A., Biotechnology 9:64-68 (1991).) Another useful selection marker is the enzyme glutamine synthase (GS) (Murphy et al., Biochem J. 227:277-279 (1991); Bebbington et al., Bio/Technology 10:169-175 (1992). Using these markers, the mammalian cells are grown in selective medium and the cells with the highest resistance are selected. These cell lines contain the amplified gene(s) integrated into a chromosome. Chinese hamster ovary (CHO) and NSO cells are often used for the production of proteins.

Derivatives of the plasmid pSV2-dhfr (ATCC Accession No. 37146), the expression vectors pC4 (ATCC Accession No. 209646) and pC6 (ATCC Accession No.209647) contain the strong promoter (LTR) of the Rous Sarcoma Virus (Cullen et al., Molecular and Cellular Biology, 438-447 (March, 1985)) plus a fragment of the CMV-enhancer (Boshart et al., Cell 41:521-530 (1985).) Multiple cloning sites, e.g., with the restriction enzyme cleavage sites BamHI, XbaI and Asp718, facilitate the cloning of the gene of interest. The vectors also contain the 3' intron, the polyadenylation and termination signal of the rat preproinsulin gene, and the mouse DHFR gene under control of the SV40 early promoter.

Specifically, the plasmid pC6, for example, is digested with appropriate restriction enzymes and then dephosphorylated using calf intestinal phosphates by procedures known in the art. The vector is then isolated from a 1% agarose gel.

A polynucleotide of the present invention is amplified according to the protocol outlined in Example 1. If a naturally occurring signal sequence is used to produce the polypeptide of the present invention, the vector does not need a second signal peptide. Alternatively, if a naturally occurring signal sequence is not used, the vector can be modified to include a heterologous signal sequence. (See, e.g., WO 96/34891.)

The amplified fragment is isolated from a 1% agarose gel using a commercially available kit ("Geneclean," BIO 101 Inc., La Jolla, Ca.). The fragment then is digested with appropriate restriction enzymes and again purified on a 1% agarose gel.

The amplified fragment is then digested with the same restriction enzyme and purified on a 1% agarose gel. The isolated fragment and the dephosphorylated vector are then ligated with T4 DNA ligase. *E. coli* HB101 or XL-1 Blue cells are then transformed and bacteria are identified that contain the fragment inserted into plasmid pC6 using, for instance, restriction enzyme analysis.

Chinese hamster ovary cells lacking an active DHFR gene is used for transfection. Five µg of the expression plasmid pC6 or pC4 is cotransfected with 0.5 µg of the plasmid pSVneo using lipofectin (Felgner et al., *supra*). The plasmid pSV2-neo contains a dominant selectable marker, the *neo* gene from Tn5 encoding an enzyme that confers resistance to a group of antibiotics including G418. The cells are seeded in alpha minus MEM supplemented with 1 mg/ml G418. After 2 days, the cells are trypsinized and seeded in hybridoma cloning plates (Greiner, Germany) in alpha minus MEM supplemented with 10, 25, or 50 ng/ml of metothrexate plus 1 mg/ml G418. After about 10-14 days single clones

are trypsinized and then seeded in 6-well petri dishes or 10 ml flasks using different concentrations of methotrexate (50 nM, 100 nM, 200 nM, 400 nM, 800 nM). Clones growing at the highest concentrations of methotrexate are then transferred to new 6-well plates containing even higher concentrations of methotrexate (1 μM, 2 μM, 5 μM, 10 mM, 20 mM). The same procedure is repeated until clones are obtained which grow at a concentration of 100 - 200 μM. Expression of the desired gene product is analyzed, for instance, by SDS-PAGE and Western blot or by reversed phase HPLC analysis.

Example 9: Protein Fusions

The polypeptides of the present invention are preferably fused to other proteins. These fusion proteins can be used for a variety of applications. For example, fusion of the present polypeptides to His-tag, HA-tag, protein A, IgG domains, and maltose binding protein facilitates purification. (See Example 5; see also EP A 394,827; Traunecker, et al., Nature 331:84-86 (1988).) Similarly, fusion to IgG-1, IgG-3, and albumin increases the halflife time in vivo. Nuclear localization signals fused to the polypeptides of the present invention can target the protein to a specific subcellular localization, while covalent heterodimer or homodimers can increase or decrease the activity of a fusion protein. Fusion proteins can also create chimeric molecules having more than one function. Finally, fusion proteins can increase solubility and/or stability of the fused protein compared to the non-fused protein. All of the types of fusion proteins described above can be made by modifying the following protocol, which outlines the fusion of a polypeptide to an IgG molecule, or the protocol described in Example 5.

Briefly, the human Fc portion of the IgG molecule can be PCR amplified, using primers that span the 5' and 3' ends of the sequence described below. These primers also should have convenient restriction enzyme sites that will facilitate cloning into an expression vector, preferably a mammalian expression vector.

For example, if pC4 (Accession No. 209646) is used, the human Fc portion can be ligated into the BamHI cloning site. Note that the 3' BamHI site should be destroyed. Next, the vector containing the human Fc portion is re-restricted with BamHI, linearizing the vector, and a polynucleotide of the present invention, isolated by the PCR protocol described in Example 1, is ligated into this BamHI site. Note that the polynucleotide is cloned without

a stop codon, otherwise a fusion protein will not be produced.

If the naturally occurring signal sequence is used to produce the polypeptide of the present invention, pC4 does not need a second signal peptide. Alternatively, if the naturally occurring signal sequence is not used, the vector can be modified to include a heterologous signal sequence. (See, e.g., WO 96/34891.)

Human IgG Fc region:

GGGATCCGGAGCCCAAATCTTCTGACAAAACTCACACATGCCCACCGTGCCCAG
CACCTGAATTCGAGGGTGCACCGTCAGTCTTCCTCTTCCCCCCAAAACCCAAGGA
CACCCTCATGATCTCCCGGACTCCTGAGGTCACATGCGTGGTGGTGGACGTAAGC
CACGAAGACCCTGAGGTCAAGTTCAACTGGTACGTGGACGGCGTGGAGGTGCAT
AATGCCAAGACAAAGCCGCGGGAGGAGCAGTACAACAGCACGTACCGTGTGGTC
AGCGTCCTCACCGTCCTGCACCAGGACTGGCTGAATGGCAAGGAGTACAAGTGC
AAGGTCTCCAACAAAGCCCTCCCAACCCCCATCGAGAAAACCATCTCCAAAGCC
AAAGGGCAGCCCCGAGAACCACAGGTGTACACCCTGCCCCCATCCCGGGATGAG
CTGACCAAGAACCAGGTCAGCCTGACCTGCCTGGTCAAAGGCTTCTATCCAAGC
GACATCGCCGTGGAGTGGGAGAGCAATGGGCAGCCGGAGAACAACTACAAGAC
CACGCCTCCCGTGCTGGACTCCGACGGCTCCTTCTTCCTCTACAGCAAGCTCACC
GTGGACAAGAGCAGGTGGCAGCAGGGGAACGTCTTCTCATGCTCCGTGATGCAT
GAGGCTCTGCACAACCACTACACGCAGAAGAGCCTCTCCCTGTCTCCGGGTAAAT
GAGTGCGACGGCCGCGACTCTAGAGGAT (SEQ ID NO:1881)

Example 10: Production of an Antibody from a Polypeptide

a) Hybridoma Technology

The antibodies of the present invention can be prepared by a variety of methods. (See, Current Protocols, Chapter 2.) As one example of such methods, cells expressing polypeptide of the present invention are administered to an animal to induce the production of sera containing polyclonal antibodies. In a preferred method, a preparation of polypeptide of the present invention is prepared and purified to render it substantially free of natural contaminants. Such a preparation is then introduced into an animal in order to produce polyclonal antisera of greater specific activity.

Monoclonal antibodies specific for polypeptide of the present invention are prepared using hybridoma technology. (Kohler et al., Nature 256:495 (1975); Kohler et al., Eur. J. Immunol. 6:511 (1976); Kohler et al., Eur. J. Immunol. 6:292 (1976); Hammerling et al., in: Monoclonal Antibodies and T-Cell Hybridomas, Elsevier, N.Y., pp. 563-681 (1981)). In general, an animal (preferably a mouse) is immunized with polypeptide of the present invention or, more preferably, with a secreted polypeptide of the present invention-expressing cell. Such polypeptide-expressing cells are cultured in any suitable tissue culture medium, preferably in Earle's modified Eagle's medium supplemented with 10% fetal bovine serum (inactivated at about 56°C), and supplemented with about 10 g/l of nonessential amino acids, about 1,000 U/ml of penicillin, and about 100 µg/ml of streptomycin.

The splenocytes of such mice are extracted and fused with a suitable myeloma cell line. Any suitable myeloma cell line may be employed in accordance with the present invention; however, it is preferable to employ the parent myeloma cell line (SP2O), available from the ATCC. After fusion, the resulting hybridoma cells are selectively maintained in HAT medium, and then cloned by limiting dilution as described by Wands et al. (Gastroenterology 80:225-232 (1981)). The hybridoma cells obtained through such a selection are then assayed to identify clones which secrete antibodies capable of binding the polypeptide of the present invention.

Alternatively, additional antibodies capable of binding to polypeptide of the present invention can be produced in a two-step procedure using anti-idiotypic antibodies. Such a method makes use of the fact that antibodies are themselves antigens, and therefore, it is possible to obtain an antibody which binds to a second antibody. In accordance with this method, protein specific antibodies are used to immunize an animal, preferably a mouse. The splenocytes of such an animal are then used to produce hybridoma cells, and the hybridoma cells are screened to identify clones which produce an antibody whose ability to bind to the polypeptide of the present invention-specific antibody can be blocked by polypeptide of the present invention. Such antibodies comprise anti-idiotypic antibodies to the polypeptide of the present invention-specific antibody and are used to immunize an animal to induce formation of further polypeptide of the present invention-specific antibodies.

For in vivo use of antibodies in humans, an antibody is "humanized". Such antibodies can be produced using genetic constructs derived from hybridoma cells producing the monoclonal antibodies described above. Methods for producing chimeric and humanized

antibodies are known in the art and are discussed herein. (See. for review, Morrison, Science 229:1202 (1985); Oi et al., BioTechniques 4:214 (1986); Cabilly et al., U.S. Patent No. 4,816,567; Taniguchi et al., EP 171496; Morrison et al.. EP 173494; Neuberger et al., WO 8601533; Robinson et al., WO 8702671; Boulianne et al., Nature 312:643 (1984); Neuberger et al.. Nature 314:268 (1985).)

b) Isolation Of Antibody Fragments Directed Against Polypeptide of the Present Invention From A Library Of scFvs

Naturally occurring V-genes isolated from human PBLs are constructed into a library of antibody fragments which contain reactivities against polypeptide of the present invention to which the donor may or may not have been exposed (see e.g., U.S. Patent 5,885,793 incorporated herein by reference in its entirety).

Rescue of the Library. A library of scFvs is constructed from the RNA of human PBLs as described in PCT publication WO 92/01047. To rescue phage displaying antibody fragments, approximately 109 E. coli harboring the phagemid are used to inoculate 50 ml of 2xTY containing 1% glucose and 100 μg/ml of ampicillin (2xTY-AMP-GLU) and grown to an O.D. of 0.8 with shaking. Five ml of this culture is used to innoculate 50 ml of 2xTY-AMP-GLU, 2 x 108 TU of delta gene 3 helper (M13 delta gene III, see PCT publication WO 92/01047) are added and the culture incubated at 37°C for 45 minutes without shaking and then at 37°C for 45 minutes with shaking. The culture is centrifuged at 4000 r.p.m. for 10 min. and the pellet resuspended in 2 liters of 2xTY containing 100 μg/ml ampicillin and 50 ug/ml kanamycin and grown overnight. Phage are prepared as described in PCT publication WO 92/01047.

M13 delta gene III is prepared as follows: M13 delta gene III helper phage does not encode gene III protein, hence the phage(mid) displaying antibody fragments have a greater avidity of binding to antigen. Infectious M13 delta gene III particles are made by growing the helper phage in cells harboring a pUC19 derivative supplying the wild type gene III protein during phage morphogenesis. The culture is incubated for 1 hour at 37° C without shaking and then for a further hour at 37°C with shaking. Cells are spun down (IEC-Centra 8,400 r.p.m. for 10 min), resuspended in 300 ml 2xTY broth containing 100 μg ampicillin/ml and 25 μg kanamycin/ml (2xTY-AMP-KAN) and grown overnight, shaking at 37°C. Phage particles are purified and concentrated from the culture medium by two PEG-precipitations

(Sambrook et al., 1990), resuspended in 2 ml PBS and passed through a 0.45 μm filter (Minisart NML; Sartorius) to give a final concentration of approximately 1013 transducing units/ml (ampicillin-resistant clones).

Panning of the Library. Immunotubes (Nunc) are coated overnight in PBS with 4 ml of either 100 μg/ml or 10 μg/ml of a polypeptide of the present invention. Tubes are blocked with 2% Marvel-PBS for 2 hours at 37°C and then washed 3 times in PBS. Approximately 1013 TU of phage is applied to the tube and incubated for 30 minutes at room temperature tumbling on an over and under turntable and then left to stand for another 1.5 hours. Tubes are washed 10 times with PBS 0.1% Tween-20 and 10 times with PBS. Phage are eluted by adding 1 ml of 100 mM triethylamine and rotating 15 minutes on an under and over turntable after which the solution is immediately neutralized with 0.5 ml of 1.0M Tris-HCl, pH 7.4. Phage are then used to infect 10 ml of mid-log E. coli TG1 by incubating eluted phage with bacteria for 30 minutes at 37°C. The E. coli are then plated on TYE plates containing 1% glucose and 100 μg/ml ampicillin. The resulting bacterial library is then rescued with delta gene 3 helper phage as described above to prepare phage for a subsequent round of selection. This process is then repeated for a total of 4 rounds of affinity purification with tube-washing increased to 20 times with PBS, 0.1% Tween-20 and 20 times with PBS for rounds 3 and 4.

Characterization of Binders. Eluted phage from the 3rd and 4th rounds of selection are used to infect E. coli HB 2151 and soluble scFv is produced (Marks, et al., 1991) from single colonies for assay. ELISAs are performed with microtitre plates coated with either 10 pg/ml of the polypeptide of the present invention in 50 mM bicarbonate pH 9.6. Clones positive in ELISA are further characterized by PCR fingerprinting (see, e.g., PCT publication WO 92/01047) and then by sequencing. These ELISA positive clones may also be further characterized by techniques known in the art, such as, for example, epitope mapping, binding affinity, receptor signal transduction, ability to block or competitively inhibit antibody/antigen binding, and competitive agonistic or antagonistic activity.

Example 11: Method of Determining Alterations in a Gene Corresponding to a Polynucleotide

RNA isolated from entire families or individual patients presenting with a phenotype of interest (such as a disease) is be isolated. cDNA is then generated from these RNA

samples using protocols known in the art. (See. Sambrook.) The cDNA is then used as a template for PCR, employing primers surrounding regions of interest in SEQ ID NO:X; and/or the nucleotide sequence of the related cDNA in the cDNA clone contained in a deposited library. Suggested PCR conditions consist of 35 cycles at 95 degrees C for 30 seconds; 60-120 seconds at 52-58 degrees C; and 60-120 seconds at 70 degrees C, using buffer solutions described in Sidransky et al., Science 252:706 (1991).

PCR products are then sequenced using primers labeled at their 5' end with T4 polynucleotide kinase, employing SequiTherm Polymerase. (Epicentre Technologies). The intron-exon borders of selected exons is also determined and genomic PCR products analyzed to confirm the results. PCR products harboring suspected mutations is then cloned and sequenced to validate the results of the direct sequencing.

PCR products is cloned into T-tailed vectors as described in Holton et al., Nucleic Acids Research, 19:1156 (1991) and sequenced with T7 polymerase (United States Biochemical). Affected individuals are identified by mutations not present in unaffected individuals.

Genomic rearrangements are also observed as a method of determining alterations in a gene corresponding to a polynucleotide. Genomic clones isolated according to Example 2 are nick-translated with digoxigenindeoxy-uridine 5'-triphosphate (Boehringer Manheim), and FISH performed as described in Johnson et al., Methods Cell Biol. 35:73-99 (1991). Hybridization with the labeled probe is carried out using a vast excess of human cot-1 DNA for specific hybridization to the corresponding genomic locus.

Chromosomes are counterstained with 4,6-diamino-2-phenylidole and propidium iodide, producing a combination of C- and R-bands. Aligned images for precise mapping are obtained using a triple-band filter set (Chroma Technology, Brattleboro, VT) in combination with a cooled charge-coupled device camera (Photometrics, Tucson, AZ) and variable excitation wavelength filters. (Johnson et al., Genet. Anal. Tech. Appl., 8:75 (1991).) Image collection, analysis and chromosomal fractional length measurements are performed using the ISee Graphical Program System. (Inovision Corporation, Durham, NC.) Chromosome alterations of the genomic region hybridized by the probe are identified as insertions, deletions, and translocations. These alterations are used as a diagnostic marker for an associated disease.

Example 12: Method of Detecting Abnormal Levels of a Polypeptide in a Biological Sample

A polypeptide of the present invention can be detected in a biological sample, and if an increased or decreased level of the polypeptide is detected, this polypeptide is a marker for a particular phenotype. Methods of detection are numerous, and thus, it is understood that one skilled in the art can modify the following assay to fit their particular needs.

For example, antibody-sandwich ELISAs are used to detect polypeptides in a sample, preferably a biological sample. Wells of a microtiter plate are coated with specific antibodies, at a final concentration of 0.2 to 10 ug/ml. The antibodies are either monoclonal or polyclonal and are produced by the method described in Example 10. The wells are blocked so that non-specific binding of the polypeptide to the well is reduced.

The coated wells are then incubated for > 2 hours at RT with a sample containing the polypeptide. Preferably, serial dilutions of the sample should be used to validate results. The plates are then washed three times with deionized or distilled water to remove unbounded polypeptide.

Next, 50 ul of specific antibody-alkaline phosphatase conjugate, at a concentration of 25-400 ng, is added and incubated for 2 hours at room temperature. The plates are again washed three times with deionized or distilled water to remove unbounded conjugate.

Add 75 ul of 4-methylumbelliferyl phosphate (MUP) or p-nitrophenyl phosphate (NPP) substrate solution to each well and incubate 1 hour at room temperature. Measure the reaction by a microtiter plate reader. Prepare a standard curve, using serial dilutions of a control sample, and plot polypeptide concentration on the X-axis (log scale) and fluorescence or absorbance of the Y-axis (linear scale). Interpolate the concentration of the polypeptide in the sample using the standard curve.

Example 13: Formulation

The invention also provides methods of treatment and/or prevention of diseases or disorders (such as, for example, any one or more of the diseases or disorders disclosed herein) by administration to a subject of an effective amount of a Therapeutic. By therapeutic is meant a polynucleotides or polypeptides of the invention (including fragments and variants), agonists or antagonists thereof, and/or antibodies thereto, in combination with

a pharmaceutically acceptable carrier type (e.g., a sterile carrier).

The Therapeutic will be formulated and dosed in a fashion consistent with good medical practice, taking into account the clinical condition of the individual patient (especially the side effects of treatment with the Therapeutic alone), the site of delivery, the method of administration, the scheduling of administration, and other factors known to practitioners. The "effective amount" for purposes herein is thus determined by such considerations.

As a general proposition, the total pharmaceutically effective amount of the Therapeutic administered parenterally per dose will be in the range of about 1ug/kg/day to 10 mg/kg/day of patient body weight, although, as noted above, this will be subject to therapeutic discretion. More preferably, this dose is at least 0.01 mg/kg/day, and most preferably for humans between about 0.01 and 1 mg/kg/day for the hormone. If given continuously, the Therapeutic is typically administered at a dose rate of about 1 ug/kg/hour to about 50 ug/kg/hour, either by 1-4 injections per day or by continuous subcutaneous infusions, for example, using a mini-pump. An intravenous bag solution may also be employed. The length of treatment needed to observe changes and the interval following treatment for responses to occur appears to vary depending on the desired effect.

Therapeutics can be are administered orally, rectally, parenterally, intracistemally, intravaginally, intraperitoneally, topically (as by powders, ointments, gels, drops or transdermal patch), bucally, or as an oral or nasal spray. "Pharmaceutically acceptable carrier" refers to a non-toxic solid, semisolid or liquid filler, diluent, encapsulating material or formulation auxiliary of any. The term "parenteral" as used herein refers to modes of administration which include intravenous, intramuscular, intraperitoneal, intrasternal, subcutaneous and intraarticular injection and infusion.

Therapeutics of the invention are also suitably administered by sustained-release systems. Suitable examples of sustained-release Therapeutics are administered orally, rectally, parenterally, intracistemally, intravaginally, intraperitoneally, topically (as by powders, ointments, gels, drops or transdermal patch), bucally, or as an oral or nasal spray. "Pharmaceutically acceptable carrier" refers to a non-toxic solid, semisolid or liquid filler, diluent, encapsulating material or formulation auxiliary of any type. The term "parenteral" as used herein refers to modes of administration which include intravenous, intramuscular, intraperitoneal, intrasternal, subcutaneous and intraarticular injection and infusion.

Therapeutics of the invention are also suitably administered by sustained-release systems. Suitable examples of sustained-release Therapeutics include suitable polymeric materials (such as. for example, semi-permeable polymer matrices in the form of shaped articles, e.g., films, or mirocapsules), suitable hydrophobic materials (for example as an emulsion in an acceptable oil) or ion exchange resins, and sparingly soluble derivatives (such as, for example, a sparingly soluble salt).

Sustained-release matrices include polylactides (U.S. Pat. No. 3,773,919, EP 58,481), copolymers of L-glutamic acid and gamma-ethyl-L-glutamate (Sidman et al., Biopolymers 22:547-556 (1983)), poly (2- hydroxyethyl methacrylate) (Langer et al., J. Biomed. Mater. Res. 15:167-277 (1981), and Langer, Chem. Tech. 12:98-105 (1982)), ethylene vinyl acetate (Langer et al., Id.) or poly-D- (-)-3-hydroxybutyric acid (EP 133,988).

Sustained-release Therapeutics also include liposomally entrapped Therapeutics of the invention (*see* generally, Langer, *Science* 249:1527-1533 (1990); Treat et al., in *Liposomes in the Therapy of Infectious Disease and Cancer*, Lopez-Berestein and Fidler (eds.), Liss, New York, pp. 317 -327 and 353-365 (1989)). Liposomes containing the Therapeutic are prepared by methods known per se: DE 3,218,121; Epstein et al., Proc. Natl. Acad. Sci. (USA) 82:3688-3692 (1985); Hwang et al., Proc. Natl. Acad. Sci.(USA) 77:4030-4034 (1980); EP 52,322; EP 36,676; EP 88,046; EP 143,949; EP 142,641; Japanese Pat. Appl. 83-118008; U.S. Pat. Nos. 4,485,045 and 4,544,545; and EP 102,324. Ordinarily, the liposomes are of the small (about 200-800 Angstroms) unilamellar type in which the lipid content is greater than about 30 mol. percent cholesterol, the selected proportion being adjusted for the optimal Therapeutic.

In yet an additional embodiment, the Therapeutics of the invention are delivered by way of a pump (*see* Langer, *supra*; Sefton, CRC Crit. Ref. Biomed. Eng. 14:201 (1987); Buchwald et al., Surgery 88:507 (1980); Saudek et al., N. Engl. J. Med. 321:574 (1989)).

Other controlled release systems are discussed in the review by Langer (*Science* 249:1527-1533 (1990)).

For parenteral administration, in one embodiment, the Therapeutic is formulated generally by mixing it at the desired degree of purity, in a unit dosage injectable form (solution, suspension, or emulsion), with a pharmaceutically acceptable carrier, i.e., one that is non-toxic to recipients at the dosages and concentrations employed and is compatible with other ingredients of the formulation. For example, the formulation preferably does not

include oxidizing agents and other compounds that are known to be deleterious to the Therapeutic.

Generally, the formulations are prepared by contacting the Therapeutic uniformly and intimately with liquid carriers or finely divided solid carriers or both. Then, if necessary, the product is shaped into the desired formulation. Preferably the carrier is a parenteral carrier, more preferably a solution that is isotonic with the blood of the recipient. Examples of such carrier vehicles include water, saline, Ringer's solution, and dextrose solution. Non-aqueous vehicles such as fixed oils and ethyl oleate are also useful herein, as well as liposomes.

The carrier suitably contains minor amounts of additives such as substances that enhance isotonicity and chemical stability. Such materials are non-toxic to recipients at the dosages and concentrations employed, and include buffers such as phosphate, citrate, succinate, acetic acid, and other organic acids or their salts; antioxidants such as ascorbic acid; low molecular weight (less than about ten residues) polypeptides, e.g., polyarginine or tripeptides; proteins, such as serum albumin, gelatin, or immunoglobulins; hydrophilic polymers such as polyvinylpyrrolidone; amino acids, such as glycine, glutamic acid, aspartic acid, or arginine; monosaccharides, disaccharides, and other carbohydrates including cellulose or its derivatives, glucose, manose, or dextrins; chelating agents such as EDTA; sugar alcohols such as mannitol or sorbitol; counterions such as sodium; and/or nonionic surfactants such as polysorbates, poloxamers, or PEG.

The Therapeutic is typically formulated in such vehicles at a concentration of about 0.1 mg/ml to 100 mg/ml, preferably 1-10 mg/ml, at a pH of about 3 to 8. It will be understood that the use of certain of the foregoing excipients, carriers, or stabilizers will result in the formation of polypeptide salts.

Any pharmaceutical used for therapeutic administration can be sterile. Sterility is readily accomplished by filtration through sterile filtration membranes (e.g., 0.2 micron membranes). Therapeutics generally are placed into a container having a sterile access port, for example, an intravenous solution bag or vial having a stopper pierceable by a hypodermic injection needle.

Therapeutics ordinarily will be stored in unit or multi-dose containers, for example, sealed ampoules or vials, as an aqueous solution or as a lyophilized formulation for reconstitution. As an example of a lyophilized formulation, 10-ml vials are filled with 5 ml of sterile-filtered 1% (w/v) aqueous Therapeutic solution, and the resulting mixture is

lyophilized. The infusion solution is prepared by reconstituting the lyophilized Therapeutic using bacteriostatic Water-for-Injection.

The invention also provides a pharmaceutical pack or kit comprising one or more containers filled with one or more of the ingredients of the Therapeutics of the invention. Associated with such container(s) can be a notice in the form prescribed by a governmental agency regulating the manufacture, use or sale of pharmaceuticals or biological products, which notice reflects approval by the agency of manufacture, use or sale for human administration. In addition, the Therapeutics may be employed in conjunction with other therapeutic compounds.

The Therapeutics of the invention may be administered alone or in combination with adjuvants. Adjuvants that may be administered with the Therapeutics of the invention include, but are not limited to, alum, alum plus deoxycholate (ImmunoAg), MTP-PE (Biocine Corp.), QS21 (Genentech, Inc.), BCG, and MPL. In a specific embodiment, Therapeutics of the invention are administered in combination with alum. In another specific embodiment, Therapeutics of the invention are administered in combination with QS-21. Further adjuvants that may be administered with the Therapeutics of the invention include, but are not limited to, Monophosphoryl lipid immunomodulator, AdjuVax 100a, QS-21, QS-18, CRL1005, Aluminum salts, MF-59, and Virosomal adjuvant technology. Vaccines that may be administered with the Therapeutics of the invention include, but are not limited to, vaccines directed toward protection against MMR (measles, mumps, rubella), polio, varicella, tetanus/diptheria, hepatitis A, hepatitis B, haemophilus influenzae B, whooping cough, pneumonia, influenza, Lyme's Disease, rotavirus, cholera, yellow fever, Japanese encephalitis, poliomyelitis, rabies, typhoid fever, and pertussis. Combinations may be administered either concomitantly, e.g., as an admixture, separately but simultaneously or concurrently; or sequentially. This includes presentations in which the combined agents are administered together as a therapeutic mixture, and also procedures in which the combined agents are administered separately but simultaneously, e.g., as through separate intravenous lines into the same individual. Administration "in combination" further includes the separate administration of one of the compounds or agents given first, followed by the second.

The Therapeutics of the invention may be administered alone or in combination with other therapeutic agents. Therapeutic agents that may be administered in combination with the Therapeutics of the invention, include but not limited to, other members of the TNF

family, chemotherapeutic agents, antibiotics, steroidal and non-steroidal anti-inflammatories, conventional immunotherapeutic agents, cytokines and/or growth factors. Combinations may be administered either concomitantly, e.g., as an admixture, separately but simultaneously or concurrently; or sequentially. This includes presentations in which the combined agents are administered together as a therapeutic mixture, and also procedures in which the combined agents are administered separately but simultaneously, e.g., as through separate intravenous lines into the same individual. Administration "in combination" further includes the separate administration of one of the compounds or agents given first, followed by the second.

In one embodiment, the Therapeutics of the invention are administered in combination with members of the TNF family. TNF, TNF-related or TNF-like molecules that may be administered with the Therapeutics of the invention include, but are not limited to, soluble forms of TNF-alpha, lymphotoxin-alpha (LT-alpha, also known as TNF-beta), LT-beta (found in complex heterotrimer LT-alpha2-beta), OPGL, FasL, CD27L, CD30L, CD40L, 4-1BBL, DcR3, OX40L, TNF-gamma (International Publication No. WO 96/14328), AIM-I (International Publication No. WO 97/33899), endokine-alpha (International Publication No. WO 98/07880), TR6 (International Publication No. WO 98/30694), OPG, and neutrokine-alpha (International Publication No. WO 98/18921, OX40, and nerve growth factor (NGF), and soluble forms of Fas, CD30, CD27, CD40 and 4-IBB, TR2 (International Publication No. WO 96/34095), DR3 (International Publication No. WO 97/33904), DR4 (International Publication No. WO 98/32856), TR5 (International Publication No. WO 98/30693), TR6 (International Publication No. WO 98/30694), TR7 (International Publication No. WO 98/41629), TRANK, TR9 (International Publication No. WO 98/56892),TR10 (International Publication No. WO 98/54202), 312C2 (International Publication No. WO 98/06842), and TR12, and soluble forms CD154, CD70, and CD153.

In certain embodiments, Therapeutics of the invention are administered in combination with antiretroviral agents, nucleoside reverse transcriptase inhibitors, non-nucleoside reverse transcriptase inhibitors, and/or protease inhibitors. Nucleoside reverse transcriptase inhibitors that may be administered in combination with the Therapeutics of the invention, include, but are not limited to, RETROVIR™ (zidovudine/AZT), VIDEX™ (didanosine/ddI), HIVID™ (zalcitabine/ddC), ZERIT™ (stavudine/d4T), EPIVIR™ (lamivudine/3TC), and COMBIVIR™ (zidovudine/lamivudine). Non-nucleoside reverse transcriptase inhibitors that may be administered in combination with the Therapeutics of the

invention, include, but are not limited to, VIRAMUNE™ (nevirapine), RESCRIPTOR™ (delavirdine), and SUSTIVA™ (efavirenz). Protease inhibitors that may be administered in combination with the Therapeutics of the invention, include, but are not limited to, CRIXIVAN™ (indinavir), NORVIR™ (ritonavir), INVIRASE™ (saquinavir), and VIRACEPT™ (nelfinavir). In a specific embodiment, antiretroviral agents, nucleoside reverse transcriptase inhibitors, non-nucleoside reverse transcriptase inhibitors, and/or protease inhibitors may be used in any combination with Therapeutics of the invention to treat AIDS and/or to prevent or treat HIV infection.

In other embodiments, Therapeutics of the invention may be administered in combination with anti-opportunistic infection agents. Anti-opportunistic agents that may be administered in combination with the Therapeutics of the invention, include, but are not limited to, TRIMETHOPRIM-SULFAMETHOXAZOLE™, DAPSONE™, PENTAMIDINE™, ATOVAQUONE™, ISONIAZID™, RIFAMPIN™, PYRAZINAMIDE™, ETHAMBUTOL™, RIFABUTIN™, CLARITHROMYCIN™, AZITHROMYCIN™, GANCICLOVIR™, FOSCARNET™, CIDOFOVIR™, FLUCONAZOLE™, ITRACONAZOLE™, KETOCONAZOLE™, ACYCLOVIR™, FAMCICOLVIR™, PYRIMETHAMINE™, LEUCOVORIN™, NEUPOGEN™ (filgrastim/G-CSF), and LEUKINE™ (sargramostim/GM-CSF). In a specific embodiment, Therapeutics of the invention are used in any combination with TRIMETHOPRIM-SULFAMETHOXAZOLE™, DAPSONE™, PENTAMIDINE™, and/or ATOVAQUONE™ to prophylactically treat or prevent an opportunistic *Pneumocystis carinii* pneumonia infection. In another specific embodiment, Therapeutics of the invention are used in any combination with ISONIAZID™, RIFAMPIN™, PYRAZINAMIDE™, and/or ETHAMBUTOL™ to prophylactically treat or prevent an opportunistic *Mycobacterium avium* complex infection. In another specific embodiment, Therapeutics of the invention are used in any combination with RIFABUTIN™, CLARITHROMYCIN™, and/or AZITHROMYCIN™ to prophylactically treat or prevent an opportunistic *Mycobacterium tuberculosis* infection. In another specific embodiment, Therapeutics of the invention are used in any combination with GANCICLOVIR™, FOSCARNET™, and/or CIDOFOVIR™ to prophylactically treat or prevent an opportunistic cytomegalovirus infection. In another specific embodiment, Therapeutics of the invention are used in any combination with FLUCONAZOLE™, ITRACONAZOLE™, and/or

KETOCONAZOLE™ to prophylactically treat or prevent an opportunistic fungal infection. In another specific embodiment, Therapeutics of the invention are used in any combination with ACYCLOVIR™ and/or FAMCICOLVIR™ to prophylactically treat or prevent an opportunistic herpes simplex virus type I and/or type II infection. In another specific embodiment, Therapeutics of the invention are used in any combination with PYRIMETHAMINE™ and/or LEUCOVORIN™ to prophylactically treat or prevent an opportunistic *Toxoplasma gondii* infection. In another specific embodiment, Therapeutics of the invention are used in any combination with LEUCOVORIN™ and/or NEUPOGEN™ to prophylactically treat or prevent an opportunistic bacterial infection.

In a further embodiment, the Therapeutics of the invention are administered in combination with an antiviral agent. Antiviral agents that may be administered with the Therapeutics of the invention include, but are not limited to, acyclovir, ribavirin, amantadine, and remantidine.

In a further embodiment, the Therapeutics of the invention are administered in combination with an antibiotic agent. Antibiotic agents that may be administered with the Therapeutics of the invention include, but are not limited to, amoxicillin, beta-lactamases, aminoglycosides, beta-lactam (glycopeptide), beta-lactamases, Clindamycin, chloramphenicol, cephalosporins, ciprofloxacin, ciprofloxacin, erythromycin, fluoroquinolones, macrolides, metronidazole, penicillins, quinolones, rifampin, streptomycin, sulfonamide, tetracyclines, trimethoprim, trimethoprim-sulfamthoxazole, and vancomycin.

Conventional nonspecific immunosuppressive agents. that may be administered in combination with the Therapeutics of the invention include, but are not limited to, steroids, cyclosporine, cyclosporine analogs, cyclophosphamide methylprednisone, prednisone, azathioprine, FK-506, 15-deoxyspergualin, and other immunosuppressive agents that act by suppressing the function of responding T cells.

In specific embodiments, Therapeutics of the invention are administered in combination with immunosuppressants. Immunosuppressants preparations that may be administered with the Therapeutics of the invention include, but are not limited to, ORTHOCLONE™ (OKT3), SANDIMMUNE™/NEORAL™/SANGDYA™ (cyclosporin), PROGRAF™ (tacrolimus), CELLCEPT™ (mycophenolate), Azathioprine, glucorticosteroids, and RAPAMUNE™ (sirolimus). In a specific embodiment, immunosuppressants may be used to prevent rejection of organ or bone marrow transplantation.

In an additional embodiment, Therapeutics of the invention are administered alone or in combination with one or more intravenous immune globulin preparations. Intravenous immune globulin preparations that may be administered with the Therapeutics of the invention include, but not limited to, GAMMAR™, IVEEGAM™, SANDOGLOBULIN™, GAMMAGARD S/D™, and GAMIMUNE™. In a specific embodiment, Therapeutics of the invention are administered in combination with intravenous immune globulin preparations in transplantation therapy (e.g., bone marrow transplant).

In an additional embodiment, the Therapeutics of the invention are administered alone or in combination with an anti-inflammatory agent. Anti-inflammatory agents that may be administered with the Therapeutics of the invention include, but are not limited to, glucocorticoids and the nonsteroidal anti-inflammatories, aminoarylcarboxylic acid derivatives, arylacetic acid derivatives, arylbutyric acid derivatives, arylcarboxylic acids, arylpropionic acid derivatives, pyrazoles, pyrazolones, salicylic acid derivatives, thiazinecarboxamides, e-acetamidocaproic acid, S-adenosylmethionine, 3-amino-4-hydroxybutyric acid, amixetrine, bendazac, benzydamine, bucolome, difenpiramide, ditazol, emorfazone, guaiazulene, nabumetone, nimesulide, orgotein, oxaceprol, paranyline, perisoxal, pifoxime, proquazone, proxazole, and tenidap.

In another embodiment, compostions of the invention are administered in combination with a chemotherapeutic agent. Chemotherapeutic agents that may be administered with the Therapeutics of the invention include, but are not limited to, antibiotic derivatives (e.g., doxorubicin, bleomycin, daunorubicin, and dactinomycin); antiestrogens (e.g., tamoxifen); antimetabolites (e.g., fluorouracil, 5-FU, methotrexate, floxuridine, interferon alpha-2b, glutamic acid, plicamycin, mercaptopurine, and 6-thioguanine); cytotoxic agents (e.g., carmustine, BCNU, lomustine, CCNU, cytosine arabinoside, cyclophosphamide, estramustine, hydroxyurea, procarbazine, mitomycin, busulfan, cis-platin, and vincristine sulfate); hormones (e.g., medroxyprogesterone, estramustine phosphate sodium, ethinyl estradiol, estradiol, megestrol acetate, methyltestosterone, diethylstilbestrol diphosphate, chlorotrianisene, and testolactone); nitrogen mustard derivatives (e.g., mephalen, chorambucil, mechlorethamine (nitrogen mustard) and thiotepa); steroids and combinations (e.g., bethamethasone sodium phosphate); and others (e.g., dicarbazine, asparaginase, mitotane, vincristine sulfate, vinblastine sulfate, and etoposide).

In a specific embodiment, Therapeutics of the invention are administered in

combination with CHOP (cyclophosphamide, doxorubicin. vincristine. and prednisone) or any combination of the components of CHOP. In another embodiment. Therapeutics of the invention are administered in combination with Rituximab. In a further embodiment, Therapeutics of the invention are administered with Rituxmab and CHOP, or Rituxmab and any combination of the components of CHOP.

In an additional embodiment, the Therapeutics of the invention are administered in combination with cytokines. Cytokines that may be administered with the Therapeutics of the invention include, but are not limited to, IL2, IL3, IL4, IL5, IL6, IL7, IL10, IL12, IL13, IL15, anti-CD40, CD40L, IFN-gamma and TNF-alpha. In another embodiment, Therapeutics of the invention may be administered with any interleukin, including, but not limited to, IL-1alpha. IL-1beta, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8, IL-9, IL-10, IL-11, IL-12, IL-13, IL-14, IL-15, IL-16, IL-17, IL-18. IL-19, IL-20, and IL-21.

In an additional embodiment, the Therapeutics of the invention are administered in combination with angiogenic proteins. Angiogenic proteins that may be administered with the Therapeutics of the invention include, but are not limited to, Glioma Derived Growth Factor (GDGF), as disclosed in European Patent Number EP-399816; Platelet Derived Growth Factor-A (PDGF-A), as disclosed in European Patent Number EP-682110; Platelet Derived Growth Factor-B (PDGF-B), as disclosed in European Patent Number EP-282317; Placental Growth Factor (PIGF), as disclosed in International Publication Number WO 92/06194; Placental Growth Factor-2 (PIGF-2), as disclosed in Hauser et al., Gorwth Factors, 4:259-268 (1993); Vascular Endothelial Growth Factor (VEGF), as disclosed in International Publication Number WO 90/13649; Vascular Endothelial Growth Factor-A (VEGF-A), as disclosed in European Patent Number EP-506477; Vascular Endothelial Growth Factor-2 (VEGF-2), as disclosed in International Publication Number WO 96/39515; Vascular Endothelial Growth Factor B (VEGF-3); Vascular Endothelial Growth Factor B-186 (VEGF-B186), as disclosed in International Publication Number WO 96/26736; Vascular Endothelial Growth Factor-D (VEGF-D), as disclosed in International Publication Number WO 98/02543; Vascular Endothelial Growth Factor-D (VEGF-D), as disclosed in International Publication Number WO 98/07832; and Vascular Endothelial Growth Factor-E (VEGF-E), as disclosed in German Patent Number DE19639601. The above mentioned references are incorporated herein by reference herein.

In an additional embodiment, the Therapeutics of the invention are administered in

combination with hematopoietic growth factors. Hematopoietic growth factors that may be administered with the Therapeutics of the invention include, but are not limited to, LEUKINE™ (SARGRAMOSTIM™) and NEUPOGEN™ (FILGRASTIM™).

In an additional embodiment, the Therapeutics of the invention are administered in combination with Fibroblast Growth Factors. Fibroblast Growth Factors that may be administered with the Therapeutics of the invention include, but are not limited to, FGF-1, FGF-2, FGF-3, FGF-4, FGF-5, FGF-6, FGF-7, FGF-8, FGF-9, FGF-10, FGF-11, FGF-12, FGF-13, FGF-14, and FGF-15.

In additional embodiments, the Therapeutics of the invention are administered in combination with other therapeutic or prophylactic regimens, such as, for example, radiation therapy.

Example 14: Method of Treating Decreased Levels of the Polypeptide

The present invention relates to a method for treating an individual in need of an increased level of a polypeptide of the invention in the body comprising administering to such an individual a composition comprising a therapeutically effective amount of an agonist of the invention (including polypeptides of the invention). Moreover, it will be appreciated that conditions caused by a decrease in the standard or normal expression level of a polypeptide of the present invention in an individual can be treated by administering the agonist or antagonist of the present invention. Thus, the invention also provides a method of treatment of an individual in need of an increased level of the polypeptide comprising administering to such an individual a Therapeutic comprising an amount of the agonist or antagonist to increase the activity level of the polypeptide in such an individual.

For example, a patient with decreased levels of a polypeptide receives a daily dose 0.1-100 ug/kg of the agonist or antagonist for six consecutive days. The exact details of the dosing scheme, based on administration and formulation, are provided in Example 13.

Example 15: Method of Treating Increased Levels of the Polypeptide

The present invention also relates to a method of treating an individual in need of a decreased level of a polypeptide of the invention in the body comprising administering to

such an individual a composition comprising a therapeutically effective amount of an antagonist of the invention (including polypeptides and antibodies of the invention).

In one example, antisense technology is used to inhibit production of a polypeptide of the present invention. This technology is one example of a method of decreasing levels of a polypeptide, due to a variety of etiologies, such as cancer.

For example, a patient diagnosed with abnormally increased levels of a polypeptide is administered intravenously antisense polynucleotides at 0.5, 1.0, 1.5, 2.0 and 3.0 mg/kg day for 21 days. This treatment is repeated after a 7-day rest period if the treatment was well tolerated. The formulation of the antisense polynucleotide is provided in Example 13.

Example 16: Method of Treatment Using Gene Therapy-Ex Vivo

One method of gene therapy transplants fibroblasts, which are capable of expressing a polypeptide, onto a patient. Generally, fibroblasts are obtained from a subject by skin biopsy. The resulting tissue is placed in tissue-culture medium and separated into small pieces. Small chunks of the tissue are placed on a wet surface of a tissue culture flask, approximately ten pieces are placed in each flask. The flask is turned upside down, closed tight and left at room temperature over night. After 24 hours at room temperature, the flask is inverted and the chunks of tissue remain fixed to the bottom of the flask and fresh media (e.g., Ham's F12 media, with 10% FBS, penicillin and streptomycin) is added. The flasks are then incubated at 37 degree C for approximately one week.

At this time, fresh media is added and subsequently changed every several days. After an additional two weeks in culture, a monolayer of fibroblasts emerge. The monolayer is trypsinized and scaled into larger flasks.

pMV-7 (Kirschmeier, P.T. et al., DNA, 7:219-25 (1988)), flanked by the long terminal repeats of the Moloney murine sarcoma virus, is digested with EcoRI and HindIII and subsequently treated with calf intestinal phosphatase. The linear vector is fractionated on agarose gel and purified, using glass beads.

The cDNA encoding a polypeptide of the present invention can be amplified using PCR primers which correspond to the 5' and 3' end sequences respectively as set forth in Example 1 using primers and having appropriate restriction sites and initiation/stop codons, if necessary. Preferably, the 5' primer contains an EcoRI site and the 3' primer includes a

HindIII site. Equal quantities of the Moloney murine sarcoma virus linear backbone and the amplified EcoRI and HindIII fragment are added together. in the presence of T4 DNA ligase. The resulting mixture is maintained under conditions appropriate for ligation of the two fragments. The ligation mixture is then used to transform bacteria HB101, which are then plated onto agar containing kanamycin for the purpose of confirming that the vector has the gene of interest properly inserted.

The amphotropic pA317 or GP+am12 packaging cells are grown in tissue culture to confluent density in Dulbecco's Modified Eagles Medium (DMEM) with 10% calf serum (CS), penicillin and streptomycin. The MSV vector containing the gene is then added to the media and the packaging cells transduced with the vector. The packaging cells now produce infectious viral particles containing the gene (the packaging cells are now referred to as producer cells).

Fresh media is added to the transduced producer cells. and subsequently, the media is harvested from a 10 cm plate of confluent producer cells. The spent media, containing the infectious viral particles, is filtered through a millipore filter to remove detached producer cells and this media is then used to infect fibroblast cells. Media is removed from a sub-confluent plate of fibroblasts and quickly replaced with the media from the producer cells. This media is removed and replaced with fresh media. If the titer of virus is high, then virtually all fibroblasts will be infected and no selection is required. If the titer is very low, then it is necessary to use a retroviral vector that has a selectable marker, such as neo or his. Once the fibroblasts have been efficiently infected, the fibroblasts are analyzed to determine whether protein is produced.

The engineered fibroblasts are then transplanted onto the host, either alone or after having been grown to confluence on cytodex 3 microcarrier beads.

Example 17: Gene Therapy Using Endogenous Genes Corresponding To Polynucleotides of the Invention

Another method of gene therapy according to the present invention involves operably associating the endogenous polynucleotide sequence of the invention with a promoter via homologous recombination as described, for example, in U.S. Patent NO: 5,641,670, issued June 24, 1997; International Publication NO: WO 96/29411, published September 26, 1996;

International Publication NO: WO 94/12650, published August 4, 1994; Koller et al., *Proc. Natl. Acad. Sci. USA*. 86:8932-8935 (1989): and Zijlstra et al.. *Nature*. 342:435-438 (1989). This method involves the activation of a gene which is present in the target cells, but which is not expressed in the cells. or is expressed at a lower level than desired.

Polynucleotide constructs are made which contain a promoter and targeting sequences, which are homologous to the 5' non-coding sequence of endogenous polynucleotide sequence, flanking the promoter. The targeting sequence will be sufficiently near the 5' end of the polynucleotide sequence so the promoter will be operably linked to the endogenous sequence upon homologous recombination. The promoter and the targeting sequences can be amplified using PCR. Preferably, the amplified promoter contains distinct restriction enzyme sites on the 5' and 3' ends. Preferably, the 3' end of the first targeting sequence contains the same restriction enzyme site as the 5' end of the amplified promoter and the 5' end of the second targeting sequence contains the same restriction site as the 3' end of the amplified promoter.

The amplified promoter and the amplified targeting sequences are digested with the appropriate restriction enzymes and subsequently treated with calf intestinal phosphatase. The digested promoter and digested targeting sequences are added together in the presence of T4 DNA ligase. The resulting mixture is maintained under conditions appropriate for ligation of the two fragments. The construct is size fractionated on an agarose gel then purified by phenol extraction and ethanol precipitation.

In this Example, the polynucleotide constructs are administered as naked polynucleotides via electroporation. However, the polynucleotide constructs may also be administered with transfection-facilitating agents, such as liposomes, viral sequences, viral particles, precipitating agents, etc. Such methods of delivery are known in the art.

Once the cells are transfected, homologous recombination will take place which results in the promoter being operably linked to the endogenous polynucleotide sequence. This results in the expression of polynucleotide corresponding to the polynucleotide in the cell. Expression may be detected by immunological staining, or any other method known in the art.

Fibroblasts are obtained from a subject by skin biopsy. The resulting tissue is placed in DMEM + 10% fetal calf serum. Exponentially growing or early stationary phase fibroblasts are trypsinized and rinsed from the plastic surface with nutrient medium. An

aliquot of the cell suspension is removed for counting, and the remaining cells are subjected to centrifugation. The supernatant is aspirated and the pellet is resuspended in 5 ml of electroporation buffer (20 mM HEPES pH 7.3, 137 mM NaCl, 5 mM KCl, 0.7 mM Na_2HPO_4, 6 mM dextrose). The cells are recentrifuged, the supernatant aspirated, and the cells resuspended in electroporation buffer containing 1 mg/ml acetylated bovine serum albumin. The final cell suspension contains approximately $3X10^6$ cells/ml. Electroporation should be performed immediately following resuspension.

Plasmid DNA is prepared according to standard techniques. For example, to construct a plasmid for targeting to the locus corresponding to the polynucleotide of the invention. plasmid pUC18 (MBI Fermentas, Amherst, NY) is digested with HindIII. The CMV promoter is amplified by PCR with an XbaI site on the 5' end and a BamHI site on the 3'end. Two non-coding sequences are amplified via PCR: one non-coding sequence (fragment 1) is amplified with a HindIII site at the 5' end and an Xba site at the 3'end; the other non-coding sequence (fragment 2) is amplified with a BamHI site at the 5'end and a HindIII site at the 3'end. The CMV promoter and the fragments (1 and 2) are digested with the appropriate enzymes (CMV promoter - XbaI and BamHI; fragment 1 - XbaI; fragment 2 - BamHI) and ligated together. The resulting ligation product is digested with HindIII, and ligated with the HindIII-digested pUC18 plasmid.

Plasmid DNA is added to a sterile cuvette with a 0.4 cm electrode gap (Bio-Rad). The final DNA concentration is generally at least 120 μg/ml. 0.5 ml of the cell suspension (containing approximately $1.5.X10^6$ cells) is then added to the cuvette, and the cell suspension and DNA solutions are gently mixed. Electroporation is performed with a Gene-Pulser apparatus (Bio-Rad). Capacitance and voltage are set at 960 μF and 250-300 V, respectively. As voltage increases, cell survival decreases, but the percentage of surviving cells that stably incorporate the introduced DNA into their genome increases dramatically. Given these parameters, a pulse time of approximately 14-20 mSec should be observed.

Electroporated cells are maintained at room temperature for approximately 5 min, and the contents of the cuvette are then gently removed with a sterile transfer pipette. The cells are added directly to 10 ml of prewarmed nutrient media (DMEM with 15% calf serum) in a 10 cm dish and incubated at 37 degree C. The following day, the media is aspirated and replaced with 10 ml of fresh media and incubated for a further 16-24 hours.

The engineered fibroblasts are then injected into the host, either alone or after having

been grown to confluence on cytodex 3 microcarrier beads. The fibroblasts now produce the protein product. The fibroblasts can then be introduced into a patient as described above.

Example 18: Method of Treatment Using Gene Therapy - In Vivo

Another aspect of the present invention is using *in vivo* gene therapy methods to treat disorders, diseases and conditions. The gene therapy method relates to the introduction of naked nucleic acid (DNA, RNA, and antisense DNA or RNA) sequences into an animal to increase or decrease the expression of the polypeptide. The polynucleotide of the present invention may be operatively linked to a promoter or any other genetic elements necessary for the expression of the polypeptide by the target tissue. Such gene therapy and delivery techniques and methods are known in the art, see, for example, WO90/11092, WO98/11779; U.S. Patent NO. 5693622, 5705151, 5580859; Tabata et al., Cardiovasc. Res. 35(3):470-479 (1997); Chao et al., Pharmacol. Res. 35(6):517-522 (1997); Wolff, Neuromuscul. Disord. 7(5):314-318 (1997); Schwartz et al., Gene Ther. 3(5):405-411 (1996); Tsurumi et al., Circulation 94(12):3281-3290 (1996) (incorporated herein by reference).

The polynucleotide constructs may be delivered by any method that delivers injectable materials to the cells of an animal, such as, injection into the interstitial space of tissues (heart, muscle, skin, lung, liver, intestine and the like). The polynucleotide constructs can be delivered in a pharmaceutically acceptable liquid or aqueous carrier.

The term "naked" polynucleotide, DNA or RNA, refers to sequences that are free from any delivery vehicle that acts to assist, promote, or facilitate entry into the cell, including viral sequences, viral particles, liposome formulations, lipofectin or precipitating agents and the like. However, the polynucleotides of the present invention may also be delivered in liposome formulations (such as those taught in Felgner P.L. et al. (1995) Ann. NY Acad. Sci. 772:126-139 and Abdallah B. et al. (1995) Biol. Cell 85(1):1-7) which can be prepared by methods well known to those skilled in the art.

The polynucleotide vector constructs used in the gene therapy method are preferably constructs that will not integrate into the host genome nor will they contain sequences that allow for replication. Any strong promoter known to those skilled in the art can be used for driving the expression of DNA. Unlike other gene therapies techniques, one major advantage of introducing naked nucleic acid sequences into target cells is the transitory nature of the

polynucleotide synthesis in the cells. Studies have shown that non-replicating DNA sequences can be introduced into cells to provide production of the desired polypeptide for periods of up to six months.

The polynucleotide construct can be delivered to the interstitial space of tissues within the an animal. including of muscle, skin, brain, lung, liver, spleen, bone marrow, thymus, heart, lymph, blood, bone, cartilage, pancreas, kidney, gall bladder, stomach, intestine, testis, ovary, uterus, rectum, nervous system, eye, gland, and connective tissue. Interstitial space of the tissues comprises the intercellular fluid, mucopolysaccharide matrix among the reticular fibers of organ tissues, elastic fibers in the walls of vessels or chambers, collagen fibers of fibrous tissues, or that same matrix within connective tissue ensheathing muscle cells or in the lacunae of bone. It is similarly the space occupied by the plasma of the circulation and the lymph fluid of the lymphatic channels. Delivery to the interstitial space of muscle tissue is preferred for the reasons discussed below. They may be conveniently delivered by injection into the tissues comprising these cells. They are preferably delivered to and expressed in persistent. non-dividing cells which are differentiated, although delivery and expression may be achieved in non-differentiated or less completely differentiated cells, such as, for example, stem cells of blood or skin fibroblasts. *In vivo* muscle cells are particularly competent in their ability to take up and express polynucleotides.

For the naked polynucleotide injection, an effective dosage amount of DNA or RNA will be in the range of from about 0.05 g/kg body weight to about 50 mg/kg body weight. Preferably the dosage will be from about 0.005 mg/kg to about 20 mg/kg and more preferably from about 0.05 mg/kg to about 5 mg/kg. Of course, as the artisan of ordinary skill will appreciate, this dosage will vary according to the tissue site of injection. The appropriate and effective dosage of nucleic acid sequence can readily be determined by those of ordinary skill in the art and may depend on the condition being treated and the route of administration. The preferred route of administration is by the parenteral route of injection into the interstitial space of tissues. However, other parenteral routes may also be used, such as, inhalation of an aerosol formulation particularly for delivery to lungs or bronchial tissues, throat or mucous membranes of the nose. In addition, naked polynucleotide constructs can be delivered to arteries during angioplasty by the catheter used in the procedure.

The dose response effects of injected polynucleotide in muscle *in vivo* is determined as follows. Suitable template DNA for production of mRNA coding for polypeptide of the

present invention is prepared in accordance with a standard recombinant DNA methodology. The template DNA, which may be either circular or linear, is either used as naked DNA or complexed with liposomes. The quadriceps muscles of mice are then injected with various amounts of the template DNA.

Five to six week old female and male Balb/C mice are anesthetized by intraperitoneal injection with 0.3 ml of 2.5% Avertin. A 1.5 cm incision is made on the anterior thigh, and the quadriceps muscle is directly visualized. The template DNA is injected in 0.1 ml of carrier in a 1 cc syringe through a 27 gauge needle over one minute, approximately 0.5 cm from the distal insertion site of the muscle into the knee and about 0.2 cm deep. A suture is placed over the injection site for future localization, and the skin is closed with stainless steel clips.

After an appropriate incubation time (e.g., 7 days) muscle extracts are prepared by excising the entire quadriceps. Every fifth 15 um cross-section of the individual quadriceps muscles is histochemically stained for protein expression. A time course for protein expression may be done in a similar fashion except that quadriceps from different mice are harvested at different times. Persistence of DNA in muscle following injection may be determined by Southern blot analysis after preparing total cellular DNA and HIRT supernatants from injected and control mice. The results of the above experimentation in mice can be use to extrapolate proper dosages and other treatment parameters in humans and other animals using naked DNA.

Example 19: Transgenic Animals

The polypeptides of the invention can also be expressed in transgenic animals. Animals of any species, including, but not limited to, mice, rats, rabbits, hamsters, guinea pigs, pigs, micro-pigs, goats, sheep, cows and non-human primates, *e.g.*, baboons, monkeys, and chimpanzees may be used to generate transgenic animals. In a specific embodiment, techniques described herein or otherwise known in the art, are used to express polypeptides of the invention in humans, as part of a gene therapy protocol.

Any technique known in the art may be used to introduce the transgene (i.e., polynucleotides of the invention) into animals to produce the founder lines of transgenic animals. Such techniques include, but are not limited to, pronuclear microinjection (Paterson

et al., Appl. Microbiol. Biotechnol. 40:691-698 (1994); Carver et al., Biotechnology (NY) 11:1263-1270 (1993); Wright et al.. Biotechnology (NY) 9:830-834 (1991); and Hoppe et al., U.S. Pat. No. 4,873,191 (1989)); retrovirus mediated gene transfer into germ lines (Van der Putten et al., Proc. Natl. Acad. Sci., USA 82:6148-6152 (1985)), blastocysts or embryos; gene targeting in embryonic stem cells (Thompson et al., Cell 56:313-321 (1989)); electroporation of cells or embryos (Lo, 1983, Mol Cell. Biol. 3:1803-1814 (1983)); introduction of the polynucleotides of the invention using a gene gun (see, e.g., Ulmer et al., Science 259:1745 (1993); introducing nucleic acid constructs into embryonic pleuripotent stem cells and transferring the stem cells back into the blastocyst; and sperm-mediated gene transfer (Lavitrano et al., Cell 57:717-723 (1989); etc. For a review of such techniques, see Gordon, "Transgenic Animals." Intl. Rev. Cytol. 115:171-229 (1989), which is incorporated by reference herein in its entirety.

Any technique known in the art may be used to produce transgenic clones containing polynucleotides of the invention, for example, nuclear transfer into enucleated oocytes of nuclei from cultured embryonic, fetal, or adult cells induced to quiescence (Campell et al., Nature 380:64-66 (1996); Wilmut et al., Nature 385:810-813 (1997)).

The present invention provides for transgenic animals that carry the transgene in all their cells, as well as animals which carry the transgene in some, but not all their cells, *i.e.*, mosaic animals or chimeric. The transgene may be integrated as a single transgene or as multiple copies such as in concatamers, *e.g.*, head-to-head tandems or head-to-tail tandems. The transgene may also be selectively introduced into and activated in a particular cell type by following, for example, the teaching of Lasko et al. (Lasko et al., Proc. Natl. Acad. Sci. USA 89:6232-6236 (1992)). The regulatory sequences required for such a cell-type specific activation will depend upon the particular cell type of interest, and will be apparent to those of skill in the art. When it is desired that the polynucleotide transgene be integrated into the chromosomal site of the endogenous gene, gene targeting is preferred. Briefly, when such a technique is to be utilized, vectors containing some nucleotide sequences homologous to the endogenous gene are designed for the purpose of integrating, via homologous recombination with chromosomal sequences, into and disrupting the function of the nucleotide sequence of the endogenous gene. The transgene may also be selectively introduced into a particular cell type, thus inactivating the endogenous gene in only that cell type, by following, for example, the teaching of Gu et al. (Gu et al., Science 265:103-106 (1994)). The regulatory sequences

required for such a cell-type specific inactivation will depend upon the particular cell type of interest. and will be apparent to those of skill in the art.

Once transgenic animals have been generated, the expression of the recombinant gene may be assayed utilizing standard techniques. Initial screening may be accomplished by Southern blot analysis or PCR techniques to analyze animal tissues to verify that integration of the transgene has taken place. The level of mRNA expression of the transgene in the tissues of the transgenic animals may also be assessed using techniques which include, but are not limited to, Northern blot analysis of tissue samples obtained from the animal, *in situ* hybridization analysis, and reverse transcriptase-PCR (rt-PCR). Samples of transgenic gene-expressing tissue may also be evaluated immunocytochemically or immunohistochemically using antibodies specific for the transgene product.

Once the founder animals are produced, they may be bred, inbred, outbred, or crossbred to produce colonies of the particular animal. Examples of such breeding strategies include, but are not limited to: outbreeding of founder animals with more than one integration site in order to establish separate lines; inbreeding of separate lines in order to produce compound transgenics that express the transgene at higher levels because of the effects of additive expression of each transgene; crossing of heterozygous transgenic animals to produce animals homozygous for a given integration site in order to both augment expression and eliminate the need for screening of animals by DNA analysis; crossing of separate homozygous lines to produce compound heterozygous or homozygous lines; and breeding to place the transgene on a distinct background that is appropriate for an experimental model of interest.

Transgenic animals of the invention have uses which include, but are not limited to, animal model systems useful in elaborating the biological function of polypeptides of the present invention, studying conditions and/or disorders associated with aberrant expression, and in screening for compounds effective in ameliorating such conditions and/or disorders.

Example 20: Knock-Out Animals

Endogenous gene expression can also be reduced by inactivating or "knocking out" the gene and/or its promoter using targeted homologous recombination. (*E.g.*, see Smithies et al., Nature 317:230-234 (1985); Thomas & Capecchi, Cell 51:503-512 (1987); Thompson

et al.. Cell 5:313-321 (1989); each of which is incorporated by reference herein in its entirety). For example, a mutant, non-functional polynucleotide of the invention (or a completely unrelated DNA sequence) flanked by DNA homologous to the endogenous polynucleotide sequence (either the coding regions or regulatory regions of the gene) can be used, with or without a selectable marker and/or a negative selectable marker, to transfect cells that express polypeptides of the invention *in vivo*. In another embodiment, techniques known in the art are used to generate knockouts in cells that contain, but do not express the gene of interest. Insertion of the DNA construct, via targeted homologous recombination, results in inactivation of the targeted gene. Such approaches are particularly suited in research and agricultural fields where modifications to embryonic stem cells can be used to generate animal offspring with an inactive targeted gene (*e.g.*, see Thomas & Capecchi 1987 and Thompson 1989, *supra*). However this approach can be routinely adapted for use in humans provided the recombinant DNA constructs are directly administered or targeted to the required site *in vivo* using appropriate viral vectors that will be apparent to those of skill in the art.

In further embodiments of the invention, cells that are genetically engineered to express the polypeptides of the invention, or alternatively, that are genetically engineered not to express the polypeptides of the invention (e.g., knockouts) are administered to a patient *in vivo*. Such cells may be obtained from the patient (i.e., animal, including human) or an MHC compatible donor and can include, but are not limited to fibroblasts, bone marrow cells, blood cells (e.g., lymphocytes), adipocytes, muscle cells, endothelial cells etc. The cells are genetically engineered *in vitro* using recombinant DNA techniques to introduce the coding sequence of polypeptides of the invention into the cells, or alternatively, to disrupt the coding sequence and/or endogenous regulatory sequence associated with the polypeptides of the invention, e.g., by transduction (using viral vectors, and preferably vectors that integrate the transgene into the cell genome) or transfection procedures, including, but not limited to, the use of plasmids, cosmids, YACs, naked DNA, electroporation, liposomes, etc. The coding sequence of the polypeptides of the invention can be placed under the control of a strong constitutive or inducible promoter or promoter/enhancer to achieve expression, and preferably secretion, of the polypeptides of the invention. The engineered cells which express and preferably secrete the polypeptides of the invention can be introduced into the patient systemically, e.g., in the circulation, or intraperitoneally.

Alternatively, the cells can be incorporated into a matrix and implanted in the body, e.g., genetically engineered fibroblasts can be implanted as part of a skin graft; genetically engineered endothelial cells can be implanted as part of a lymphatic or vascular graft. (See, for example, Anderson et al. U.S. Patent No. 5,399,349; and Mulligan & Wilson, U.S. Patent No. 5,460,959 each of which is incorporated by reference herein in its entirety).

When the cells to be administered are non-autologous or non-MHC compatible cells, they can be administered using well known techniques which prevent the development of a host immune response against the introduced cells. For example, the cells may be introduced in an encapsulated form which, while allowing for an exchange of components with the immediate extracellular environment, does not allow the introduced cells to be recognized by the host immune system.

Transgenic and "knock-out" animals of the invention have uses which include, but are not limited to, animal model systems useful in elaborating the biological function of polypeptides of the present invention, studying conditions and/or disorders associated with aberrant expression, and in screening for compounds effective in ameliorating such conditions and/or disorders.

Example 22: Assays Detecting Stimulation or Inhibition of B cell Proliferation and Differentiation

Generation of functional humoral immune responses requires both soluble and cognate signaling between B-lineage cells and their microenvironment. Signals may impart a positive stimulus that allows a B-lineage cell to continue its programmed development, or a negative stimulus that instructs the cell to arrest its current developmental pathway. To date, numerous stimulatory and inhibitory signals have been found to influence B cell responsiveness including IL-2, IL-4, IL-5, IL-6, IL-7, IL10, IL-13, IL-14 and IL-15. Interestingly, these signals are by themselves weak effectors but can, in combination with various co-stimulatory proteins, induce activation, proliferation, differentiation, homing, tolerance and death among B cell populations.

One of the best studied classes of B-cell co-stimulatory proteins is the TNF-superfamily. Within this family CD40, CD27, and CD30 along with their respective ligands CD154, CD70, and CD153 have been found to regulate a variety of immune responses.

Assays which allow for the detection and/or observation of the proliferation and differentiation of these B-cell populations and their precursors are valuable tools in determining the effects various proteins may have on these B-cell populations in terms of proliferation and differentiation. Listed below are two assays designed to allow for the detection of the differentiation, proliferation, or inhibition of B-cell populations and their precursors.

In Vitro Assay- Agonists or antagonists of the invention can be assessed for its ability to induce activation, proliferation, differentiation or inhibition and/or death in B-cell populations and their precursors. The activity of the agonists or antagonists of the invention on purified human tonsillar B cells, measured qualitatively over the dose range from 0.1 to 10,000 ng/mL, is assessed in a standard B-lymphocyte co-stimulation assay in which purified tonsillar B cells are cultured in the presence of either formalin-fixed Staphylococcus aureus Cowan I (SAC) or immobilized anti-human IgM antibody as the priming agent. Second signals such as IL-2 and IL-15 synergize with SAC and IgM crosslinking to elicit B cell proliferation as measured by tritiated-thymidine incorporation. Novel synergizing agents can be readily identified using this assay. The assay involves isolating human tonsillar B cells by magnetic bead (MACS) depletion of CD3-positive cells. The resulting cell population is greater than 95% B cells as assessed by expression of CD45R(B220).

Various dilutions of each sample are placed into individual wells of a 96-well plate to which are added 10^5 B-cells suspended in culture medium (RPMI 1640 containing 10% FBS, 5 X 10^{-5}M 2ME, 100U/ml penicillin, 10ug/ml streptomycin, and 10^{-5} dilution of SAC) in a total volume of 150ul. Proliferation or inhibition is quantitated by a 20h pulse (1uCi/well) with 3H-thymidine (6.7 Ci/mM) beginning 72h post factor addition. The positive and negative controls are IL2 and medium respectively.

In Vivo Assay- BALB/c mice are injected (i.p.) twice per day with buffer only, or 2 mg/Kg of agonists or antagonists of the invention, or truncated forms thereof. Mice receive this treatment for 4 consecutive days, at which time they are sacrificed and various tissues and serum collected for analyses. Comparison of H&E sections from normal spleens and spleens treated with agonists or antagonists of the invention identify the results of the activity of the agonists or antagonists on spleen cells, such as the diffusion of peri-arterial lymphatic sheaths, and/or significant increases in the nucleated cellularity of the red pulp regions, which may indicate the activation of the differentiation and proliferation of B-cell populations.

Immunohistochemical studies using a B cell marker, anti-CD45R(B220), are used to determine whether any physiological changes to splenic cells, such as splenic disorganization, are due to increased B-cell representation within loosely defined B-cell zones that infiltrate established T-cell regions.

Flow cytometric analyses of the spleens from mice treated with agonist or antagonist is used to indicate whether the agonists or antagonists specifically increases the proportion of ThB+, CD45R(B220)dull B cells over that which is observed in control mice.

Likewise, a predicted consequence of increased mature B-cell representation in vivo is a relative increase in serum Ig titers. Accordingly, serum IgM and IgA levels are compared between buffer and agonists or antagonists-treated mice.

The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

Example 23: T Cell Proliferation Assay

A CD3-induced proliferation assay is performed on PBMCs and is measured by the uptake of ^{3}H-thymidine. The assay is performed as follows. Ninety-six well plates are coated with 100 µl/well of mAb to CD3 (HIT3a, Pharmingen) or isotype-matched control mAb (B33.1) overnight at 4 degrees C (1 µg/ml in .05M bicarbonate buffer, pH 9.5), then washed three times with PBS. PBMC are isolated by F/H gradient centrifugation from human peripheral blood and added to quadruplicate wells (5×10^4/well) of mAb coated plates in RPMI containing 10% FCS and P/S in the presence of varying concentrations of agonists or antagonists of the invention (total volume 200 ul). Relevant protein buffer and medium alone are controls. After 48 hr. culture at 37 degrees C, plates are spun for 2 min. at 1000 rpm and 100 µl of supernatant is removed and stored –20 degrees C for measurement of IL-2 (or other cytokines) if effect on proliferation is observed. Wells are supplemented with 100 ul of medium containing 0.5 uCi of ^{3}H-thymidine and cultured at 37 degrees C for 18-24 hr. Wells are harvested and incorporation of ^{3}H-thymidine used as a measure of proliferation. Anti-CD3 alone is the positive control for proliferation. IL-2 (100 U/ml) is also used as a control which enhances proliferation. Control antibody which does not induce proliferation of T cells is used as the negative controls for the effects of agonists or antagonists of the

invention.

The studies described in this example tested activity of agonists or antagonists of the invention. However. one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

Example 24: Effect of Agonists or Antagonists of the Invention on the Expression of MHC Class II, Costimulatory and Adhesion Molecules and Cell Differentiation of Monocytes and Monocyte-Derived Human Dendritic Cells

Dendritic cells are generated by the expansion of proliferating precursors found in the peripheral blood: adherent PBMC or elutriated monocytic fractions are cultured for 7-10 days with GM-CSF (50 ng/ml) and IL-4 (20 ng/ml). These dendritic cells have the characteristic phenotype of immature cells (expression of CD1, CD80, CD86, CD40 and MHC class II antigens). Treatment with activating factors, such as TNF-α, causes a rapid change in surface phenotype (increased expression of MHC class I and II, costimulatory and adhesion molecules, downregulation of FCγRII, upregulation of CD83). These changes correlate with increased antigen-presenting capacity and with functional maturation of the dendritic cells.

FACS analysis of surface antigens is performed as follows. Cells are treated 1-3 days with increasing concentrations of agonist or antagonist of the invention or LPS (positive control), washed with PBS containing 1% BSA and 0.02 mM sodium azide, and then incubated with 1:20 dilution of appropriate FITC- or PE-labeled monoclonal antibodies for 30 minutes at 4 degrees C. After an additional wash, the labeled cells are analyzed by flow cytometry on a FACScan (Becton Dickinson).

<u>Effect on the production of cytokines</u>. Cytokines generated by dendritic cells, in particular IL-12, are important in the initiation of T-cell dependent immune responses. IL-12 strongly influences the development of Thl helper T-cell immune response, and induces cytotoxic T and NK cell function. An ELISA is used to measure the IL-12 release as follows. Dendritic cells (10^6/ml) are treated with increasing concentrations of agonists or antagonists of the invention for 24 hours. LPS (100 ng/ml) is added to the cell culture as positive control. Supernatants from the cell cultures are then collected and analyzed for IL-12 content using commercial ELISA kit (e..g, R & D Systems (Minneapolis. MN)). The standard protocols

provided with the kits are used.

Effect on the expression of MHC Class II, costimulatory and adhesion molecules. Three major families of cell surface antigens can be identified on monocytes: adhesion molecules, molecules involved in antigen presentation, and Fc receptor. Modulation of the expression of MHC class II antigens and other costimulatory molecules, such as B7 and ICAM-1, may result in changes in the antigen presenting capacity of monocytes and ability to induce T cell activation. Increase expression of Fc receptors may correlate with improved monocyte cytotoxic activity, cytokine release and phagocytosis.

FACS analysis is used to examine the surface antigens as follows. Monocytes are treated 1-5 days with increasing concentrations of agonists or antagonists of the invention or LPS (positive control), washed with PBS containing 1% BSA and 0.02 mM sodium azide, and then incubated with 1:20 dilution of appropriate FITC- or PE-labeled monoclonal antibodies for 30 minutes at 4 degreesC. After an additional wash, the labeled cells are analyzed by flow cytometry on a FACScan (Becton Dickinson).

Monocyte activation and/or increased survival. Assays for molecules that activate (or alternatively, inactivate) monocytes and/or increase monocyte survival (or alternatively, decrease monocyte survival) are known in the art and may routinely be applied to determine whether a molecule of the invention functions as an inhibitor or activator of monocytes. Agonists or antagonists of the invention can be screened using the three assays described below. For each of these assays, Peripheral blood mononuclear cells (PBMC) are purified from single donor leukopacks (American Red Cross, Baltimore, MD) by centrifugation through a Histopaque gradient (Sigma). Monocytes are isolated from PBMC by counterflow centrifugal elutriation.

Monocyte Survival Assay. Human peripheral blood monocytes progressively lose viability when cultured in absence of serum or other stimuli. Their death results from internally regulated process (apoptosis). Addition to the culture of activating factors, such as TNF-alpha dramatically improves cell survival and prevents DNA fragmentation. Propidium iodide (PI) staining is used to measure apoptosis as follows. Monocytes are cultured for 48 hours in polypropylene tubes in serum-free medium (positive control), in the presence of 100 ng/ml

TNF-alpha (negative control), and in the presence of varying concentrations of the compound to be tested. Cells are suspended at a concentration of 2×10^6/ml in PBS containing PI at a final concentration of 5 µg/ml, and then incubaed at room temperature for 5 minutes before FACScan analysis. PI uptake has been demonstrated to correlate with DNA fragmentation in this experimental paradigm.

Effect on cytokine release. An important function of monocytes/macrophages is their regulatory activity on other cellular populations of the immune system through the release of cytokines after stimulation. An ELISA to measure cytokine release is performed as follows. Human monocytes are incubated at a density of 5×10^5 cells/ml with increasing concentrations of agonists or antagonists of the invention and under the same conditions, but in the absence of agonists or antagonists. For IL-12 production, the cells are primed overnight with IFN (100 U/ml) in presence of agonist or antagonist of the invention. LPS (10 ng/ml) is then added. Conditioned media are collected after 24h and kept frozen until use. Measurement of TNF-alpha, IL-10, MCP-1 and IL-8 is then performed using a commercially available ELISA kit (e. g, R & D Systems (Minneapolis, MN)) and applying the standard protocols provided with the kit.

Oxidative burst. Purified monocytes are plated in 96-w plate at $2\text{-}1 \times 10^5$ cell/well. Increasing concentrations of agonists or antagonists of the invention are added to the wells in a total volume of 0.2 ml culture medium (RPMI 1640 + 10% FCS, glutamine and antibiotics). After 3 days incubation, the plates are centrifuged and the medium is removed from the wells. To the macrophage monolayers, 0.2 ml per well of phenol red solution (140 mM NaCl, 10 mM potassium phosphate buffer pH 7.0, 5.5 mM dextrose, 0.56 mM phenol red and 19 U/ml of HRPO) is added, together with the stimulant (200 nM PMA). The plates are incubated at 37°C for 2 hours and the reaction is stopped by adding 20 µl 1N NaOH per well. The absorbance is read at 610 nm. To calculate the amount of H_2O_2 produced by the macrophages, a standard curve of a H_2O_2 solution of known molarity is performed for each experiment.

The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

Example 25: Biological Effects of Agonists or Antagonists of the Invention

Astrocyte and Neuronal Assays.

Agonists or antagonists of the invention, expressed in *Escherichia coli* and purified as described above, can be tested for activity in promoting the survival, neurite outgrowth, or phenotypic differentiation of cortical neuronal cells and for inducing the proliferation of glial fibrillary acidic protein immunopositive cells, astrocytes. The selection of cortical cells for the bioassay is based on the prevalent expression of FGF-1 and FGF-2 in cortical structures and on the previously reported enhancement of cortical neuronal survival resulting from FGF-2 treatment. A thymidine incorporation assay, for example, can be used to elucidate an agonist or antagonist of the invention's activity on these cells.

Moreover, previous reports describing the biological effects of FGF-2 (basic FGF) on cortical or hippocampal neurons *in vitro* have demonstrated increases in both neuron survival and neurite outgrowth (Walicke et al., "Fibroblast growth factor promotes survival of dissociated hippocampal neurons and enhances neurite extension." *Proc. Natl. Acad. Sci. USA 83*:3012-3016. (1986), assay herein incorporated by reference in its entirety). However, reports from experiments done on PC-12 cells suggest that these two responses are not necessarily synonymous and may depend on not only which FGF is being tested but also on which receptor(s) are expressed on the target cells. Using the primary cortical neuronal culture paradigm, the ability of an agonist or antagonist of the invention to induce neurite outgrowth can be compared to the response achieved with FGF-2 using, for example, a thymidine incorporation assay.

Fibroblast and endothelial cell assays.

Human lung fibroblasts are obtained from Clonetics (San Diego, CA) and maintained in growth media from Clonetics. Dermal microvascular endothelial cells are obtained from Cell Applications (San Diego, CA). For proliferation assays, the human lung fibroblasts and dermal microvascular endothelial cells can be cultured at 5,000 cells/well in a 96-well plate for one day in growth medium. The cells are then incubated for one day in 0.1% BSA basal

medium. After replacing the medium with fresh 0.1% BSA medium, the cells are incubated with the test proteins for 3 days. Alamar Blue (Alamar Biosciences, Sacramento. CA) is added to each well to a final concentration of 10%. The cells are incubated for 4 hr. Cell viability is measured by reading in a CytoFluor fluorescence reader. For the PGE_2 assays, the human lung fibroblasts are cultured at 5,000 cells/well in a 96-well plate for one day. After a medium change to 0.1% BSA basal medium, the cells are incubated with FGF-2 or agonists or antagonists of the invention with or without IL-1α for 24 hours. The supernatants are collected and assayed for PGE_2 by EIA kit (Cayman, Ann Arbor. MI). For the IL-6 assays, the human lung fibroblasts are cultured at 5,000 cells/well in a 96-well plate for one day. After a medium change to 0.1% BSA basal medium. the cells are incubated with FGF-2 or with or without agonists or antagonists of the invention IL-1α for 24 hours. The supernatants are collected and assayed for IL-6 by ELISA kit (Endogen, Cambridge, MA).

Human lung fibroblasts are cultured with FGF-2 or agonists or antagonists of the invention for 3 days in basal medium before the addition of Alamar Blue to assess effects on growth of the fibroblasts. FGF-2 should show a stimulation at 10 - 2500 ng/ml which can be used to compare stimulation with agonists or antagonists of the invention.

Parkinson Models.

The loss of motor function in Parkinson's disease is attributed to a deficiency of striatal dopamine resulting from the degeneration of the nigrostriatal dopaminergic projection neurons. An animal model for Parkinson's that has been extensively characterized involves the systemic administration of 1-methyl-4 phenyl 1,2,3,6-tetrahydropyridine (MPTP). In the CNS, MPTP is taken-up by astrocytes and catabolized by monoamine oxidase B to 1-methyl-4-phenyl pyridine (MPP^+) and released. Subsequently, MPP^+ is actively accumulated in dopaminergic neurons by the high-affinity reuptake transporter for dopamine. MPP^+ is then concentrated in mitochondria by the electrochemical gradient and selectively inhibits nicotidamide adenine disphosphate: ubiquinone oxidoreductionase (complex I), thereby interfering with electron transport and eventually generating oxygen radicals.

It has been demonstrated in tissue culture paradigms that FGF-2 (basic FGF) has trophic activity towards nigral dopaminergic neurons (Ferrari et al.. Dev. Biol. 1989). Recently, Dr. Unsicker's group has demonstrated that administering FGF-2 in gel foam

implants in the striatum results in the near complete protection of nigral dopaminergic neurons from the toxicity associated with MPTP exposure (Otto and Unsicker, J. Neuroscience, 1990).

Based on the data with FGF-2, agonists or antagonists of the invention can be evaluated to determine whether it has an action similar to that of FGF-2 in enhancing dopaminergic neuronal survival *in vitro* and it can also be tested *in vivo* for protection of dopaminergic neurons in the striatum from the damage associated with MPTP treatment. The potential effect of an agonist or antagonist of the invention is first examined in vitro in a dopaminergic neuronal cell culture paradigm. The cultures are prepared by dissecting the midbrain floor plate from gestation day 14 Wistar rat embryos. The tissue is dissociated with trypsin and seeded at a density of 200,000 cells/cm^2 on polyorthinine-laminin coated glass coverslips. The cells are maintained in Dulbecco's Modified Eagle's medium and F12 medium containing hormonal supplements (N1). The cultures are fixed with paraformaldehyde after 8 days in vitro and are processed for tyrosine hydroxylase, a specific marker for dopminergic neurons. immunohistochemical staining. Dissociated cell cultures are prepared from embryonic rats. The culture medium is changed every third day and the factors are also added at that time.

Since the dopaminergic neurons are isolated from animals at gestation day 14, a developmental time which is past the stage when the dopaminergic precursor cells are proliferating, an increase in the number of tyrosine hydroxylase immunopositive neurons would represent an increase in the number of dopaminergic neurons surviving *in vitro*. Therefore, if an agonist or antagonist of the invention acts to prolong the survival of dopaminergic neurons, it would suggest that the agonist or antagonist may be involved in Parkinson's Disease.

The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

Example 26: The Effect of Agonists or Antagonists of the Invention on the Growth of Vascular Endothelial Cells

On day 1, human umbilical vein endothelial cells (HUVEC) are seeded at 2-5x10^4 cells/35 mm dish density in M199 medium containing 4% fetal bovine serum (FBS), 16 units/ml heparin, and 50 units/ml endothelial cell growth supplements (ECGS, Biotechnique, Inc.). On day 2, the medium is replaced with M199 containing 10% FBS, 8 units/ml heparin. An agonist or antagonist of the invention, and positive controls, such as VEGF and basic FGF (bFGF) are added, at varying concentrations. On days 4 and 6, the medium is replaced. On day 8, cell number is determined with a Coulter Counter.

An increase in the number of HUVEC cells indicates that the compound of the invention may proliferate vascular endothelial cells, while a decrease in the number of HUVEC cell indicates that the compound of the invention inhibits vascular endothelial cells.

The studies described in this example tested activity of a polypeptide of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides (e.g., gene therapy), agonists, and/or antagonists of the invention.

Example 27: Rat Corneal Wound Healing Model

This animal model shows the effect of an agonist or antagonist of the invention on neovascularization. The experimental protocol includes:

a) Making a 1-1.5 mm long incision from the center of cornea into the stromal layer.

b) Inserting a spatula below the lip of the incision facing the outer corner of the eye.

c) Making a pocket (its base is 1-1.5 mm form the edge of the eye).

d) Positioning a pellet, containing 50ng- 5ug of an agonist or antagonist of the invention, within the pocket.

e) Treatment with an agonist or antagonist of the invention can also be applied topically to the corneal wounds in a dosage range of 20mg - 500mg (daily treatment for five days).

The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

Example 28: Diabetic Mouse and Glucocorticoid-Impaired Wound Healing Models

A. Diabetic db+/db+ Mouse Model.

To demonstrate that an agonist or antagonist of the invention accelerates the healing process, the genetically diabetic mouse model of wound healing is used. The full thickness wound healing model in the db+/db+ mouse is a well characterized, clinically relevant and reproducible model of impaired wound healing. Healing of the diabetic wound is dependent on formation of granulation tissue and re-epithelialization rather than contraction (Gartner, M.H. *et al., J. Surg. Res. 52*:389 (1992); Greenhalgh, D.G. *et al., Am. J. Pathol. 136*:1235 (1990)).

The diabetic animals have many of the characteristic features observed in Type II diabetes mellitus. Homozygous (db+/db+) mice are obese in comparison to their normal heterozygous (db+/+m) littermates. Mutant diabetic (db+/db+) mice have a single autosomal recessive mutation on chromosome 4 (db+) (Coleman *et al. Proc. Natl. Acad. Sci. USA 77*:283-293 (1982)). Animals show polyphagia, polydipsia and polyuria. Mutant diabetic mice (db+/db+) have elevated blood glucose, increased or normal insulin levels, and suppressed cell-mediated immunity (Mandel *et al., J. Immunol. 120*:1375 (1978); Debray-Sachs, M. *et al., Clin. Exp. Immunol. 51(1)*:1-7 (1983); Leiter *et al., Am. J. of Pathol. 114*:46-55 (1985)). Peripheral neuropathy, myocardial complications, and microvascular lesions, basement membrane thickening and glomerular filtration abnormalities have been described in these animals (Norido, F. *et al., Exp. Neurol. 83(2)*:221-232 (1984); Robertson *et al., Diabetes 29(1)*:60-67 (1980); Giacomelli *et al.. Lab Invest. 40(4)*:460-473 (1979); Coleman, D.L., *Diabetes 31 (Suppl)*:1-6 (1982)). These homozygous diabetic mice develop hyperglycemia that is resistant to insulin analogous to human type II diabetes (Mandel *et al., J. Immunol. 120*:1375-1377 (1978)).

The characteristics observed in these animals suggests that healing in this model may be similar to the healing observed in human diabetes (Greenhalgh, *et al.. Am. J. of Pathol. 136*:1235-1246 (1990)).

Genetically diabetic female C57BL/KsJ (db+/db+) mice and their non-diabetic (db+/+m) heterozygous littermates are used in this study (Jackson Laboratories). The animals are purchased at 6 weeks of age and are 8 weeks old at the beginning of the study. Animals are individually housed and received food and water ad libitum. All manipulations

are performed using aseptic techniques. The experiments are conducted according to the rules and guidelines of Human Genome Sciences, Inc. Institutional Animal Care and Use Committee and the Guidelines for the Care and Use of Laboratory Animals.

Wounding protocol is performed according to previously reported methods (Tsuboi, R. and Rifkin, D.B., *J. Exp. Med.* 172:245-251 (1990)). Briefly, on the day of wounding, animals are anesthetized with an intraperitoneal injection of Avertin (0.01 mg/mL), 2,2,2-tribromoethanol and 2-methyl-2-butanol dissolved in deionized water. The dorsal region of the animal is shaved and the skin washed with 70% ethanol solution and iodine. The surgical area is dried with sterile gauze prior to wounding. An 8 mm full-thickness wound is then created using a Keyes tissue punch. Immediately following wounding, the surrounding skin is gently stretched to eliminate wound expansion. The wounds are left open for the duration of the experiment. Application of the treatment is given topically for 5 consecutive days commencing on the day of wounding. Prior to treatment, wounds are gently cleansed with sterile saline and gauze sponges.

Wounds are visually examined and photographed at a fixed distance at the day of surgery and at two day intervals thereafter. Wound closure is determined by daily measurement on days 1-5 and on day 8. Wounds are measured horizontally and vertically using a calibrated Jameson caliper. Wounds are considered healed if granulation tissue is no longer visible and the wound is covered by a continuous epithelium.

An agonist or antagonist of the invention is administered using at a range different doses, from 4mg to 500mg per wound per day for 8 days in vehicle. Vehicle control groups received 50mL of vehicle solution.

Animals are euthanized on day 8 with an intraperitoneal injection of sodium pentobarbital (300mg/kg). The wounds and surrounding skin are then harvested for histology and immunohistochemistry. Tissue specimens are placed in 10% neutral buffered formalin in tissue cassettes between biopsy sponges for further processing.

Three groups of 10 animals each (5 diabetic and 5 non-diabetic controls) are evaluated: 1) Vehicle placebo control, 2) untreated group, and 3) treated group.

Wound closure is analyzed by measuring the area in the vertical and horizontal axis and obtaining the total square area of the wound. Contraction is then estimated by establishing the differences between the initial wound area (day 0) and that of post treatment (day 8). The wound area on day 1 is $64mm^2$, the corresponding size of the dermal punch. Calculations are

made using the following formula:

[Open area on day 8] - [Open area on day 1] / [Open area on day 1]

Specimens are fixed in 10% buffered formalin and paraffin embedded blocks are sectioned perpendicular to the wound surface (5mm) and cut using a Reichert-Jung microtome. Routine hematoxylin-eosin (H&E) staining is performed on cross-sections of bisected wounds. Histologic examination of the wounds are used to assess whether the healing process and the morphologic appearance of the repaired skin is altered by treatment with an agonist or antagonist of the invention. This assessment included verification of the presence of cell accumulation, inflammatory cells, capillaries, fibroblasts, re-epithelialization and epidermal maturity (Greenhalgh, D.G. *et al., Am. J. Pathol. 136:*1235 (1990)). A calibrated lens micrometer is used by a blinded observer.

Tissue sections are also stained immunohistochemically with a polyclonal rabbit anti-human keratin antibody using ABC Elite detection system. Human skin is used as a positive tissue control while non-immune IgG is used as a negative control. Keratinocyte growth is determined by evaluating the extent of reepithelialization of the wound using a calibrated lens micrometer.

Proliferating cell nuclear antigen/cyclin (PCNA) in skin specimens is demonstrated by using anti-PCNA antibody (1:50) with an ABC Elite detection system. Human colon cancer served as a positive tissue control and human brain tissue is used as a negative tissue control. Each specimen included a section with omission of the primary antibody and substitution with non-immune mouse IgG. Ranking of these sections is based on the extent of proliferation on a scale of 0-8, the lower side of the scale reflecting slight proliferation to the higher side reflecting intense proliferation.

Experimental data are analyzed using an unpaired t test. A p value of < 0.05 is considered significant.

B. Steroid Impaired Rat Model

The inhibition of wound healing by steroids has been well documented in various *in vitro* and *in vivo* systems (Wahl, Glucocorticoids and Wound healing. In: Anti-Inflammatory Steroid Action: Basic and Clinical Aspects. 280-302 (1989); Wahl*et al., J. Immunol. 115*: 476-481

(1975); Werb *et al.*, *J. Exp. Med. 147*:1684-1694 (1978)). Glucocorticoids retard wound healing by inhibiting angiogenesis, decreasing vascular permeability (Ebert *et al.*, *An. Intern. Med. 37*:701-705 (1952)), fibroblast proliferation, and collagen synthesis (Beck *et al.*, *Growth Factors. 5*: 295-304 (1991); Haynes *et al.*, *J. Clin. Invest. 61*: 703-797 (1978)) and producing a transient reduction of circulating monocytes (Haynes et al., *J. Clin. Invest. 61*: 703-797 (1978); Wahl, "Glucocorticoids and wound healing", *In:* Antiinflammatory Steroid Action: Basic and Clinical Aspects, Academic Press, New York, pp. 280-302 (1989)). The systemic administration of steroids to impaired wound healing is a well establish phenomenon in rats (Beck *et al.*, *Growth Factors. 5*: 295-304 (1991); Haynes *et al.*, *J. Clin. Invest. 61*: 703-797 (1978); Wahl, "Glucocorticoids and wound healing", *In*: Antiinflammatory Steroid Action: Basic and Clinical Aspects, Academic Press, New York, pp. 280-302 (1989); Pierce *et al.*, *Proc. Natl. Acad. Sci. USA 86*: 2229-2233 (1989)).

To demonstrate that an agonist or antagonist of the invention can accelerate the healing process, the effects of multiple topical applications of the agonist or antagonist on full thickness excisional skin wounds in rats in which healing has been impaired by the systemic administration of methylprednisolone is assessed.

Young adult male Sprague Dawley rats weighing 250-300 g (Charles River Laboratories) are used in this example. The animals are purchased at 8 weeks of age and are 9 weeks old at the beginning of the study. The healing response of rats is impaired by the systemic administration of methylprednisolone (17mg/kg/rat intramuscularly) at the time of wounding. Animals are individually housed and received food and water *ad libitum*. All manipulations are performed using aseptic techniques. This study is conducted according to the rules and guidelines of Human Genome Sciences, Inc. Institutional Animal Care and Use Committee and the Guidelines for the Care and Use of Laboratory Animals.

The wounding protocol is followed according to section A, above. On the day of wounding, animals are anesthetized with an intramuscular injection of ketamine (50 mg/kg) and xylazine (5 mg/kg). The dorsal region of the animal is shaved and the skin washed with 70% ethanol and iodine solutions. The surgical area is dried with sterile gauze prior to wounding. An 8 mm full-thickness wound is created using a Keyes tissue punch. The wounds are left open for the duration of the experiment. Applications of the testing materials are given topically once a day for 7 consecutive days commencing on the day of wounding and subsequent to methylprednisolone administration. Prior to treatment, wounds are gently

cleansed with sterile saline and gauze sponges.

Wounds are visually examined and photographed at a fixed distance at the day of wounding and at the end of treatment. Wound closure is determined by daily measurement on days 1-5 and on day 8. Wounds are measured horizontally and vertically using a calibrated Jameson caliper. Wounds are considered healed if granulation tissue is no longer visible and the wound is covered by a continuous epithelium.

The agonist or antagonist of the invention is administered using at a range different doses, from 4mg to 500mg per wound per day for 8 days in vehicle. Vehicle control groups received 50mL of vehicle solution.

Animals are euthanized on day 8 with an intraperitoneal injection of sodium pentobarbital (300mg/kg). The wounds and surrounding skin are then harvested for histology. Tissue specimens are placed in 10% neutral buffered formalin in tissue cassettes between biopsy sponges for further processing.

Four groups of 10 animals each (5 with methylprednisolone and 5 without glucocorticoid) are evaluated: 1) Untreated group 2) Vehicle placebo control 3) treated groups.

Wound closure is analyzed by measuring the area in the vertical and horizontal axis and obtaining the total area of the wound. Closure is then estimated by establishing the differences between the initial wound area (day 0) and that of post treatment (day 8). The wound area on day 1 is $64mm^2$, the corresponding size of the dermal punch. Calculations are made using the following formula:

[Open area on day 8] - [Open area on day 1] / [Open area on day 1]

Specimens are fixed in 10% buffered formalin and paraffin embedded blocks are sectioned perpendicular to the wound surface (5mm) and cut using an Olympus microtome. Routine hematoxylin-eosin (H&E) staining is performed on cross-sections of bisected wounds. Histologic examination of the wounds allows assessment of whether the healing process and the morphologic appearance of the repaired skin is improved by treatment with an agonist or antagonist of the invention. A calibrated lens micrometer is used by a blinded observer to determine the distance of the wound gap.

Experimental data are analyzed using an unpaired t test. A p value of < 0.05 is

considered significant.

The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

Example 29: Lymphadema Animal Model

The purpose of this experimental approach is to create an appropriate and consistent lymphedema model for testing the therapeutic effects of an agonist or antagonist of the invention in lymphangiogenesis and re-establishment of the lymphatic circulatory system in the rat hind limb. Effectiveness is measured by swelling volume of the affected limb, quantification of the amount of lymphatic vasculature, total blood plasma protein, and histopathology. Acute lymphedema is observed for 7-10 days. Perhaps more importantly, the chronic progress of the edema is followed for up to 3-4 weeks.

Prior to beginning surgery, blood sample is drawn for protein concentration analysis. Male rats weighing approximately ~350g are dosed with Pentobarbital. Subsequently, the right legs are shaved from knee to hip. The shaved area is swabbed with gauze soaked in 70% EtOH. Blood is drawn for serum total protein testing. Circumference and volumetric measurements are made prior to injecting dye into paws after marking 2 measurement levels (0.5 cm above heel, at mid-pt of dorsal paw). The intradermal dorsum of both right and left paws are injected with 0.05 ml of 1% Evan's Blue. Circumference and volumetric measurements are then made following injection of dye into paws.

Using the knee joint as a landmark, a mid-leg inguinal incision is made circumferentially allowing the femoral vessels to be located. Forceps and hemostats are used to dissect and separate the skin flaps. After locating the femoral vessels, the lymphatic vessel that runs along side and underneath the vessel(s) is located. The main lymphatic vessels in this area are then electrically coagulated or suture ligated.

Using a microscope, muscles in back of the leg (near the semitendinosis and adductors) are bluntly dissected. The popliteal lymph node is then located. The 2 proximal and 2 distal lymphatic vessels and distal blood supply of the popliteal node are then and ligated by suturing. The popliteal lymph node, and any accompanying adipose tissue, is then removed by cutting connective tissues.

Care is taken to control any mild bleeding resulting from this procedure. After lymphatics are occluded, the skin flaps are sealed by using liquid skin (Vetbond) (AJ Buck). The separated skin edges are sealed to the underlying muscle tissue while leaving a gap of ~0.5 cm around the leg. Skin also may be anchored by suturing to underlying muscle when necessary.

To avoid infection, animals are housed individually with mesh (no bedding). Recovering animals are checked daily through the optimal edematous peak, which typically occurred by day 5-7. The plateau edematous peak are then observed. To evaluate the intensity of the lymphedema, the circumference and volumes of 2 designated places on each paw before operation and daily for 7 days are measured. The effect plasma proteins on lymphedema is determined and whether protein analysis is a useful testing perimeter is also investigated. The weights of both control and edematous limbs are evaluated at 2 places. Analysis is performed in a blind manner.

Circumference Measurements: Under brief gas anesthetic to prevent limb movement, a cloth tape is used to measure limb circumference. Measurements are done at the ankle bone and dorsal paw by 2 different people then those 2 readings are averaged. Readings are taken from both control and edematous limbs.

Volumetric Measurements: On the day of surgery, animals are anesthetized with Pentobarbital and are tested prior to surgery. For daily volumetrics animals are under brief halothane anesthetic (rapid immobilization and quick recovery), both legs are shaved and equally marked using waterproof marker on legs. Legs are first dipped in water, then dipped into instrument to each marked level then measured by Buxco edema software(Chen/Victor). Data is recorded by one person, while the other is dipping the limb to marked area.

Blood-plasma protein measurements: Blood is drawn, spun, and serum separated prior to surgery and then at conclusion for total protein and Ca2+ comparison.

Limb Weight Comparison: After drawing blood, the animal is prepared for tissue collection. The limbs are amputated using a quillitine, then both experimental and control legs are cut at the ligature and weighed. A second weighing is done as the tibio-cacaneal joint is disarticulated and the foot is weighed.

Histological Preparations: The transverse muscle located behind the knee (popliteal) area is dissected and arranged in a metal mold, filled with freezeGel, dipped into cold methylbutane, placed into labeled sample bags at - 80EC until sectioning. Upon sectioning,

the muscle is observed under fluorescent microscopy for lymphatics..

The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studiés to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

Example 30: Suppression of TNF alpha-induced adhesion molecule expression by a Agonist or Antagonist of the Invention

The recruitment of lymphocytes to areas of inflammation and angiogenesis involves specific receptor-ligand interactions between cell surface adhesion molecules (CAMs) on lymphocytes and the vascular endothelium. The adhesion process, in both normal and pathological settings, follows a multi-step cascade that involves intercellular adhesion molecule-1 (ICAM-1), vascular cell adhesion molecule-1 (VCAM-1), and endothelial leukocyte adhesion molecule-1 (E-selectin) expression on endothelial cells (EC). The expression of these molecules and others on the vascular endothelium determines the efficiency with which leukocytes may adhere to the local vasculature and extravasate into the local tissue during the development of an inflammatory response. The local concentration of cytokines and growth factor participate in the modulation of the expression of these CAMs.

Tumor necrosis factor alpha (TNF-a), a potent proinflammatory cytokine, is a stimulator of all three CAMs on endothelial cells and may be involved in a wide variety of inflammatory responses, often resulting in a pathological outcome.

The potential of an agonist or antagonist of the invention to mediate a suppression of TNF-a induced CAM expression can be examined. A modified ELISA assay which uses ECs as a solid phase absorbent is employed to measure the amount of CAM expression on TNF-a treated ECs when co-stimulated with a member of the FGF family of proteins.

To perform the experiment, human umbilical vein endothelial cell (HUVEC) cultures are obtained from pooled cord harvests and maintained in growth medium (EGM-2; Clonetics, San Diego, CA) supplemented with 10% FCS and 1% penicillin/streptomycin in a 37 degree C humidified incubator containing 5% CO_2. HUVECs are seeded in 96-well plates at concentrations of 1×10^4 cells/well in EGM medium at 37 degree C for 18-24 hrs or until confluent. The monolayers are subsequently washed 3 times with a serum-free solution of RPMI-1640 supplemented with 100 U/ml penicillin and 100 mg/ml streptomycin, and

treated with a given cytokine and/or growth factor(s) for 24 h at 37 degree C. Following incubation, the cells are then evaluated for CAM expression.

Human Umbilical Vein Endothelial cells (HUVECs) are grown in a standard 96 well plate to confluence. Growth medium is removed from the cells and replaced with 90 ul of 199 Medium (10% FBS). Samples for testing and positive or negative controls are added to the plate in triplicate (in 10 ul volumes). Plates are incubated at 37 degree C for either 5 h (selectin and integrin expression) or 24 h (integrin expression only). Plates are aspirated to remove medium and 100 µl of 0.1% paraformaldehyde-PBS(with Ca++ and Mg++) is added to each well. Plates are held at 4°C for 30 min.

Fixative is then removed from the wells and wells are washed 1X with PBS(+Ca,Mg)+0.5% BSA and drained. Do not allow the wells to dry. Add 10 µl of diluted primary antibody to the test and control wells. Anti-ICAM-1-Biotin, Anti-VCAM-1-Biotin and Anti-E-selectin-Biotin are used at a concentration of 10 µg/ml (1:10 dilution of 0.1 mg/ml stock antibody). Cells are incubated at 37°C for 30 min. in a humidified environment. Wells are washed X3 with PBS(+Ca,Mg)+0.5% BSA.

Then add 20 µl of diluted ExtrAvidin-Alkaline Phosphotase (1:5,000 dilution) to each well and incubated at 37°C for 30 min. Wells are washed X3 with PBS(+Ca,Mg)+0.5% BSA. 1 tablet of p-Nitrophenol Phosphate pNPP is dissolved in 5 ml of glycine buffer (pH 10.4). 100 µl of pNPP substrate in glycine buffer is added to each test well. Standard wells in triplicate are prepared from the working dilution of the ExtrAvidin-Alkaline Phosphotase in glycine buffer: 1:5,000 (10^0) > $10^{-0.5}$ > 10^{-1} > $10^{-1.5}$. 5 µl of each dilution is added to triplicate wells and the resulting AP content in each well is 5.50 ng, 1.74 ng, 0.55 ng, 0.18 ng. 100 µl of pNNP reagent must then be added to each of the standard wells. The plate must be incubated at 37°C for 4h. A volume of 50 µl of 3M NaOH is added to all wells. The results are quantified on a plate reader at 405 nm. The background subtraction option is used on blank wells filled with glycine buffer only. The template is set up to indicate the concentration of AP-conjugate in each standard well [5.50 ng; 1.74 ng; 0.55 ng; 0.18 ng]. Results are indicated as amount of bound AP-conjugate in each sample.

The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

Example 31: Production Of Polypeptide of the Invention For High-Throughput Screening Assays

The following protocol produces a supernatant containing polypeptide of the present invention to be tested. This supernatant can then be used in the Screening Assays described in Examples 33-42.

First, dilute Poly-D-Lysine (644 587 Boehringer-Mannheim) stock solution (1mg/ml in PBS) 1:20 in PBS (w/o calcium or magnesium 17-516F Biowhittaker) for a working solution of 50ug/ml. Add 200 ul of this solution to each well (24 well plates) and incubate at RT for 20 minutes. Be sure to distribute the solution over each well (note: a 12-channel pipetter may be used with tips on every other channel). Aspirate off the Poly-D-Lysine solution and rinse with 1ml PBS (Phosphate Buffered Saline). The PBS should remain in the well until just prior to plating the cells and plates may be poly-lysine coated in advance for up to two weeks.

Plate 293T cells (do not carry cells past P+20) at 2 x 10^5 cells/well in .5ml DMEM(Dulbecco's Modified Eagle Medium)(with 4.5 G/L glucose and L-glutamine (12-604F Biowhittaker))/10% heat inactivated FBS(14-503F Biowhittaker)/1x Penstrep(17-602E Biowhittaker). Let the cells grow overnight.

The next day, mix together in a sterile solution basin: 300 ul Lipofectamine (18324-012 Gibco/BRL) and 5ml Optimem I (31985070 Gibco/BRL)/96-well plate. With a small volume multi-channel pipetter, aliquot approximately 2ug of an expression vector containing a polynucleotide insert, produced by the methods described in Examples 8-10, into an appropriately labeled 96-well round bottom plate. With a multi-channel pipetter, add 50ul of the Lipofectamine/Optimem I mixture to each well. Pipette up and down gently to mix. Incubate at RT 15-45 minutes. After about 20 minutes, use a multi-channel pipetter to add 150ul Optimem I to each well. As a control, one plate of vector DNA lacking an insert should be transfected with each set of transfections.

Preferably, the transfection should be performed by tag-teaming the following tasks. By tag-teaming, hands on time is cut in half, and the cells do not spend too much time on PBS. First, person A aspirates off the media from four 24-well plates of cells, and then person B rinses each well with .5-1ml PBS. Person A then aspirates off PBS rinse, and person B, using a12-channel pipetter with tips on every other channel, adds the 200ul of

DNA/Lipofectamine/Optimem I complex to the odd wells first. then to the even wells, to each row on the 24-well plates. Incubate at 37 degree C for 6 hours.

While cells are incubating, prepare appropriate media, either 1%BSA in DMEM with 1x penstrep, or HGS CHO-5 media (116.6 mg/L of CaCl2 (anhyd); 0.00130 mg/L $CuSO_4$-$5H_2O$; 0.050 mg/L of $Fe(NO_3)_3$-$9H_2O$; 0.417 mg/L of $FeSO_4$-$7H_2O$; 311.80 mg/L of Kcl; 28.64 mg/L of $MgCl_2$; 48.84 mg/L of $MgSO_4$; 6995.50 mg/L of NaCl; 2400.0 mg/L of $NaHCO_3$; 62.50 mg/L of NaH_2PO_4-H_20; 71.02 mg/L of Na_2HPO4; .4320 mg/L of $ZnSO_4$-$7H_2O$; .002 mg/L of Arachidonic Acid ; 1.022 mg/L of Cholesterol; .070 mg/L of DL-alpha-Tocopherol-Acetate; 0.0520 mg/L of Linoleic Acid; 0.010 mg/L of Linolenic Acid; 0.010 mg/L of Myristic Acid; 0.010 mg/L of Oleic Acid; 0.010 mg/L of Palmitric Acid; 0.010 mg/L of Palmitic Acid; 100 mg/L of Pluronic F-68; 0.010 mg/L of Stearic Acid; 2.20 mg/L of Tween 80; 4551 mg/L of D-Glucose; 130.85 mg/ml of L- Alanine; 147.50 mg/ml of L-Arginine-HCL; 7.50 mg/ml of L-Asparagine-H_20; 6.65 mg/ml of L-Aspartic Acid; 29.56 mg/ml of L-Cystine-2HCL-H_20; 31.29 mg/ml of L-Cystine-2HCL; 7.35 mg/ml of L-Glutamic Acid; 365.0 mg/ml of L-Glutamine; 18.75 mg/ml of Glycine; 52.48 mg/ml of L-Histidine-HCL-H_20; 106.97 mg/ml of L-Isoleucine; 111.45 mg/ml of L-Leucine; 163.75 mg/ml of L-Lysine HCL; 32.34 mg/ml of L-Methionine; 68.48 mg/ml of L-Phenylalainine; 40.0 mg/ml of L-Proline; 26.25 mg/ml of L-Serine; 101.05 mg/ml of L-Threonine; 19.22 mg/ml of L-Tryptophan; 91.79 mg/ml of L-Tryrosine-2Na-$2H_20$; and 99.65 mg/ml of L-Valine; 0.0035 mg/L of Biotin; 3.24 mg/L of D-Ca Pantothenate; 11.78 mg/L of Choline Chloride; 4.65 mg/L of Folic Acid; 15.60 mg/L of i-Inositol; 3.02 mg/L of Niacinamide; 3.00 mg/L of Pyridoxal HCL; 0.031 mg/L of Pyridoxine HCL; 0.319 mg/L of Riboflavin; 3.17 mg/L of Thiamine HCL; 0.365 mg/L of Thymidine; 0.680 mg/L of Vitamin B_{12}; 25 mM of HEPES Buffer; 2.39 mg/L of Na Hypoxanthine; 0.105 mg/L of Lipoic Acid; 0.081 mg/L of Sodium Putrescine-2HCL; 55.0 mg/L of Sodium Pyruvate; 0.0067 mg/L of Sodium Selenite; 20uM of Ethanolamine; 0.122 mg/L of Ferric Citrate; 41.70 mg/L of Methyl-B-Cyclodextrin complexed with Linoleic Acid; 33.33 mg/L of Methyl-B-Cyclodextrin complexed with Oleic Acid; 10 mg/L of Methyl-B-Cyclodextrin complexed with Retinal Acetate. Adjust osmolarity to 327 mOsm) with 2mm glutamine and 1x penstrep. (BSA (81-068-3 Bayer) 100gm dissolved in 1L DMEM for a 10% BSA stock solution). Filter the media and collect 50 ul for endotoxin assay in 15ml polystyrene conical.

The transfection reaction is terminated, preferably by tag-teaming, at the end of the incubation period. Person A aspirates off the transfection media, while person B adds 1.5ml appropriate media to each well. Incubate at 37 degree C for 45 or 72 hours depending on the media used: 1%BSA for 45 hours or CHO-5 for 72 hours.

On day four, using a 300ul multichannel pipetter, aliquot 600ul in one 1ml deep well plate and the remaining supernatant into a 2ml deep well. The supernatants from each well can then be used in the assays described in Examples 33-40.

It is specifically understood that when activity is obtained in any of the assays described below using a supernatant, the activity originates from either the polypeptide of the present invention directly (e.g., as a secreted protein) or by polypeptide of the present invention inducing expression of other proteins, which are then secreted into the supernatant. Thus, the invention further provides a method of identifying the protein in the supernatant characterized by an activity in a particular assay.

Example 32: Construction of GAS Reporter Construct

One signal transduction pathway involved in the differentiation and proliferation of cells is called the Jaks-STATs pathway. Activated proteins in the Jaks-STATs pathway bind to gamma activation site "GAS" elements or interferon-sensitive responsive element ("ISRE"), located in the promoter of many genes. The binding of a protein to these elements alter the expression of the associated gene.

GAS and ISRE elements are recognized by a class of transcription factors called Signal Transducers and Activators of Transcription, or "STATs." There are six members of the STATs family. Stat1 and Stat3 are present in many cell types, as is Stat2 (as response to IFN-alpha is widespread). Stat4 is more restricted and is not in many cell types though it has been found in T helper class I, cells after treatment with IL-12. Stat5 was originally called mammary growth factor, but has been found at higher concentrations in other cells including myeloid cells. It can be activated in tissue culture cells by many cytokines.

The STATs are activated to translocate from the cytoplasm to the nucleus upon tyrosine phosphorylation by a set of kinases known as the Janus Kinase ("Jaks") family. Jaks represent a distinct family of soluble tyrosine kinases and include Tyk2, Jak1, Jak2, and Jak3. These kinases display significant sequence similarity and are generally catalytically inactive

in resting cells.

The Jaks are activated by a wide range of receptors summarized in the Table below. (Adapted from review by Schidler and Darnell, Ann. Rev. Biochem. 64:621-51 (1995).) A cytokine receptor family, capable of activating Jaks, is divided into two groups: (a) Class 1 includes receptors for IL-2, IL-3, IL-4, IL-6, IL-7, IL-9, IL-11, IL-12, IL-15, Epo, PRL, GH, G-CSF, GM-CSF, LIF, CNTF, and thrombopoietin; and (b) Class 2 includes IFN-a, IFN-g, and IL-10. The Class 1 receptors share a conserved cysteine motif (a set of four conserved cysteines and one tryptophan) and a WSXWS motif (a membrane proximal region encoding Trp-Ser-Xxx-Trp-Ser (SEQ ID NO:1882)).

Thus, on binding of a ligand to a receptor, Jaks are activated, which in turn activate STATs, which then translocate and bind to GAS elements. This entire process is encompassed in the Jaks-STATs signal transduction pathway.

Therefore, activation of the Jaks-STATs pathway, reflected by the binding of the GAS or the ISRE element, can be used to indicate proteins involved in the proliferation and differentiation of cells. For example, growth factors and cytokines are known to activate the Jaks-STATs pathway. (See Table below.) Thus, by using GAS elements linked to reporter molecules, activators of the Jaks-STATs pathway can be identified.

		JAKs			STATS	GAS(elements) or ISRE
Ligand	tvk2	Jak1	Jak2	Jak3		
IFN family						
IFN-a/B	+	+	-	-	1,2,3	ISRE
IFN-g		+	+	-	1	GAS
(IRF1>Lys6>IFP)						
Il-10	+	?	?	-	1,3	
gp130 family						
IL-6 (Pleiotrohic)	+	+	+	?	1,3	GAS
(IRF1>Lys6>IFP)						
Il-11(Pleiotrohic)	?	+	?	?	1,3	
OnM(Pleiotrohic)	?	+	+	?	1,3	
LIF(Pleiotrohic)	?	+	+	?	1,3	
CNTF(Pleiotrohic)	-/+	+	+	?	1,3	
G-CSF(Pleiotrohic)	?	+	?	?	1,3	
IL-12(Pleiotrohic)	+	-	+	+	1,3	
g-C family						
IL-2 (lymphocytes)	-	+	-	+	1,3,5	GAS
IL-4 (lymph/myeloid)	-	+	-	+	6	GAS (IRF1 = IFP
>>Ly6)(IgH)						
IL-7 (lymphocytes)	-	+	-	+	5	GAS
IL-9 (lymphocytes)	-	+	-	+	5	GAS
IL-13 (lymphocyte)	-	+	?	?	6	GAS
IL-15	?	+	?	+	5	GAS
gp140 family						
IL-3 (myeloid)	-	-	+	-	5	GAS
(IRF1>IFP>>Ly6)						
IL-5 (myeloid)	-	-	+	-	5	GAS
GM-CSF (myeloid)	-	-	+	-	5	GAS

Growth hormone family						
GH	?	-	+	-	5	
PRL	?	+/-	+	-	1,3,5	
EPO	?	-	+	-	5	GAS(B-CAS>IRF1=IFP>>Ly6)
Receptor Tyrosine Kinases						
EGF	?	+	+	-	1,3	GAS (IRF1)
PDGF	?	+	+	-	1,3	
CSF-1	?	+	+	-	1,3	GAS (not IRF1)

To construct a synthetic GAS containing promoter element. which is used in the Biological Assays described in Examples 33-34, a PCR based strategy is employed to generate a GAS-SV40 promoter sequence. The 5' primer contains four tandem copies of the GAS binding site found in the IRF1 promoter and previously demonstrated to bind STATs upon induction with a range of cytokines (Rothman et al., Immunity 1:457-468 (1994).), although other GAS or ISRE elements can be used instead. The 5' primer also contains 18bp of sequence complementary to the SV40 early promoter sequence and is flanked with an XhoI site. The sequence of the 5' primer is:

5':GCGCCTCGAGATTTCCCCGAAATCTAGATTTCCCCGAAATGATTTCCCC GAAATGATTTCCCCGAAATATCTGCCATCTCAATTAG:3' (SEQ ID NO:1883)

The downstream primer is complementary to the SV40 promoter and is flanked with a Hind III site: 5':GCGGCAAGCTTTTTGCAAAGCCTAGGC:3' (SEQ ID NO:1884)

PCR amplification is performed using the SV40 promoter template present in the B-gal:promoter plasmid obtained from Clontech. The resulting PCR fragment is digested with XhoI/Hind III and subcloned into BLSK2-. (Stratagene.) Sequencing with forward and reverse primers confirms that the insert contains the following sequence:

5':CTCGAGATTTCCCCGAAATCTAGATTTCCCCGAAATGATTTCCCCGAAA TGATTTCCCCGAAATATCTGCCATCTCAATTAGTCAGCAACCATAGTCCCG CCCCTAACTCCGCCCATCCCGCCCCTAACTCCGCCCAGTTCCGCCCATTCT CCGCCCCATGGCTGACTAATTTTTTTTATTTATGCAGAGGCCGAGGCCGCC TCGGCCTCTGAGCTATTCCAGAAGTAGTGAGGAGGCTTTTTTGGAGGCCTA GGCTTTTGCAAAAAGCTT:3' (SEQ ID NO:1885)

With this GAS promoter element linked to the SV40 promoter, a GAS:SEAP2 reporter construct is next engineered. Here, the reporter molecule is a secreted alkaline phosphatase, or "SEAP." Clearly, however, any reporter molecule can be instead of SEAP, in this or in any of the other Examples. Well known reporter molecules that can be used instead of SEAP include chloramphenicol

acetyltransferase (CAT). luciferase. alkaline phosphatase. B-galactosidase. green fluorescent protein (GFP). or any protein detectable by an antibody.

The above sequence confirmed synthetic GAS-SV40 promoter element is subcloned into the pSEAP-Promoter vector obtained from Clontech using HindIII and XhoI. effectively replacing the SV40 promoter with the amplified GAS:SV40 promoter element, to create the GAS-SEAP vector. However, this vector does not contain a neomycin resistance gene, and therefore, is not preferred for mammalian expression systems.

Thus, in order to generate mammalian stable cell lines expressing the GAS-SEAP reporter. the GAS-SEAP cassette is removed from the GAS-SEAP vector using SalI and NotI, and inserted into a backbone vector containing the neomycin resistance gene. such as pGFP-1 (Clontech). using these restriction sites in the multiple cloning site, to create the GAS-SEAP/Neo vector. Once this vector is transfected into mammalian cells, this vector can then be used as a reporter molecule for GAS binding as described in Examples 33-34.

Other constructs can be made using the above description and replacing GAS with a different promoter sequence. For example, construction of reporter molecules containing NFK-B and EGR promoter sequences are described in Examples 35 and 36. However, many other promoters can be substituted using the protocols described in these Examples. For instance, SRE. IL-2, NFAT, or Osteocalcin promoters can be substituted, alone or in combination (e.g., GAS/NF-KB/EGR, GAS/NF-KB, Il-2/NFAT, or NF-KB/GAS). Similarly, other cell lines can be used to test reporter construct activity, such as HELA (epithelial), HUVEC (endothelial), Reh (B-cell), Saos-2 (osteoblast), HUVAC (aortic), or Cardiomyocyte.

Example 33: High-Throughput Screening Assay for T-cell Activity.

The following protocol is used to assess T-cell activity by identifying factors, and determining whether supernate containing a polypeptide of the invention proliferates and/or differentiates T-cells. T-cell activity is assessed using the

GAS/SEAP/Neo construct produced in Example 32. Thus. factors that increase SEAP activity indicate the ability to activate the Jaks-STATS signal transduction pathway. The T-cell used in this assay is Jurkat T-cells (ATCC Accession No. TIB-152), although Molt-3 cells (ATCC Accession No. CRL-1552) and Molt-4 cells (ATCC Accession No. CRL-1582) cells can also be used.

Jurkat T-cells are lymphoblastic CD4+ Th1 helper cells. In order to generate stable cell lines, approximately 2 million Jurkat cells are transfected with the GAS-SEAP/neo vector using DMRIE-C (Life Technologies)(transfection procedure described below). The transfected cells are seeded to a density of approximately 20.000 cells per well and transfectants resistant to 1 mg/ml genticin selected. Resistant colonies are expanded and then tested for their response to increasing concentrations of interferon gamma. The dose response of a selected clone is demonstrated.

Specifically, the following protocol will yield sufficient cells for 75 wells containing 200 ul of cells. Thus, it is either scaled up, or performed in multiple to generate sufficient cells for multiple 96 well plates. Jurkat cells are maintained in RPMI + 10% serum with 1%Pen-Strep. Combine 2.5 mls of OPTI-MEM (Life Technologies) with 10 ug of plasmid DNA in a T25 flask. Add 2.5 ml OPTI-MEM containing 50 ul of DMRIE-C and incubate at room temperature for 15-45 mins.

During the incubation period, count cell concentration, spin down the required number of cells (10^7 per transfection), and resuspend in OPTI-MEM to a final concentration of 10^7 cells/ml. Then add 1ml of 1 x 10^7 cells in OPTI-MEM to T25 flask and incubate at 37 degree C for 6 hrs. After the incubation, add 10 ml of RPMI + 15% serum.

The Jurkat:GAS-SEAP stable reporter lines are maintained in RPMI + 10% serum, 1 mg/ml Genticin, and 1% Pen-Strep. These cells are treated with supernatants containing polypeptide of the present invention or polypeptide of the present invention induced polypeptides as produced by the protocol described in Example 31.

On the day of treatment with the supernatant, the cells should be washed and

resuspended in fresh RPMI + 10% serum to a density of 500.000 cells per ml. The exact number of cells required will depend on the number of supernatants being screened. For one 96 well plate, approximately 10 million cells (for 10 plates, 100 million cells) are required.

Transfer the cells to a triangular reservoir boat, in order to dispense the cells into a 96 well dish, using a 12 channel pipette. Using a 12 channel pipette, transfer 200 ul of cells into each well (therefore adding 100, 000 cells per well).

After all the plates have been seeded, 50 ul of the supernatants are transferred directly from the 96 well plate containing the supernatants into each well using a 12 channel pipette. In addition, a dose of exogenous interferon gamma (0.1, 1.0, 10 ng) is added to wells H9, H10, and H11 to serve as additional positive controls for the assay.

The 96 well dishes containing Jurkat cells treated with supernatants are placed in an incubator for 48 hrs (note: this time is variable between 48-72 hrs). 35 ul samples from each well are then transferred to an opaque 96 well plate using a 12 channel pipette. The opaque plates should be covered (using sellophene covers) and stored at -20 degree C until SEAP assays are performed according to Example 37. The plates containing the remaining treated cells are placed at 4 degree C and serve as a source of material for repeating the assay on a specific well if desired.

As a positive control, 100 Unit/ml interferon gamma can be used which is known to activate Jurkat T cells. Over 30 fold induction is typically observed in the positive control wells.

The above protocol may be used in the generation of both transient, as well as, stable transfected cells, which would be apparent to those of skill in the art.

Example 34: High-Throughput Screening Assay Identifying Myeloid Activity

The following protocol is used to assess myeloid activity of polypeptide of the present invention by determining whether polypeptide of the present invention proliferates and/or differentiates myeloid cells. Myeloid cell activity is assessed using

the GAS/SEAP/Neo construct produced in Example 32. Thus. factors that increase SEAP activity indicate the ability to activate the Jaks-STATS signal transduction pathway. The myeloid cell used in this assay is U937, a pre-monocyte cell line, although TF-1, HL60. or KG1 can be used.

To transiently transfect U937 cells with the GAS/SEAP/Neo construct produced in Example 32, a DEAE-Dextran method (Kharbanda et. al., 1994, Cell Growth & Differentiation. 5:259-265) is used. First, harvest 2x10e^7 U937 cells and wash with PBS. The U937 cells are usually grown in RPMI 1640 medium containing 10% heat-inactivated fetal bovine serum (FBS) supplemented with 100 units/ml penicillin and 100 mg/ml streptomycin.

Next, suspend the cells in 1 ml of 20 mM Tris-HCl (pH 7.4) buffer containing 0.5 mg/ml DEAE-Dextran, 8 ug GAS-SEAP2 plasmid DNA, 140 mM NaCl, 5 mM KCl, 375 uM $Na_2HPO_4.7H_2O$, 1 mM $MgCl_2$, and 675 uM $CaCl_2$. Incubate at 37 degrees C for 45 min.

Wash the cells with RPMI 1640 medium containing 10% FBS and then resuspend in 10 ml complete medium and incubate at 37 degree C for 36 hr.

The GAS-SEAP/U937 stable cells are obtained by growing the cells in 400 ug/ml G418. The G418-free medium is used for routine growth but every one to two months, the cells should be re-grown in 400 ug/ml G418 for couple of passages.

These cells are tested by harvesting $1x10^8$ cells (this is enough for ten 96-well plates assay) and wash with PBS. Suspend the cells in 200 ml above described growth medium, with a final density of $5x10^5$ cells/ml. Plate 200 ul cells per well in the 96-well plate (or $1x10^5$ cells/well).

Add 50 ul of the supernatant prepared by the protocol described in Example 31. Incubate at 37 degee C for 48 to 72 hr. As a positive control, 100 Unit/ml interferon gamma can be used which is known to activate U937 cells. Over 30 fold induction is typically observed in the positive control wells. SEAP assay the supernatant according to the protocol described in Example 37.

Example 35: High-Throughput Screening Assay Identifying Neuronal Activity.

When cells undergo differentiation and proliferation. a group of genes are activated through many different signal transduction pathways. One of these genes. EGR1 (early growth response gene 1). is induced in various tissues and cell types upon activation. The promoter of EGR1 is responsible for such induction. Using the EGR1 promoter linked to reporter molecules, activation of cells can be assessed by polypeptide of the present invention.

Particularly, the following protocol is used to assess neuronal activity in PC12 cell lines. PC12 cells (rat phenochromocytoma cells) are known to proliferate and/or differentiate by activation with a number of mitogens, such as TPA (tetradecanoyl phorbol acetate), NGF (nerve growth factor), and EGF (epidermal growth factor). The EGR1 gene expression is activated during this treatment. Thus, by stably transfecting PC12 cells with a construct containing an EGR promoter linked to SEAP reporter. activation of PC12 cells by polypeptide of the present invention can be assessed.

The EGR/SEAP reporter construct can be assembled by the following protocol. The EGR-1 promoter sequence (-633 to +1)(Sakamoto K et al., Oncogene 6:867-871 (1991)) can be PCR amplified from human genomic DNA using the following primers:

5' GCGCTCGAGGGATGACAGCGATAGAACCCCGG -3' (SEQ ID NO: 1886)

5' GCGAAGCTTCGCGACTCCCCGGATCCGCCTC-3' (SEQ ID NO: 1887)

Using the GAS:SEAP/Neo vector produced in Example 32, EGR1 amplified product can then be inserted into this vector. Linearize the GAS:SEAP/Neo vector using restriction enzymes XhoI/HindIII, removing the GAS/SV40 stuffer. Restrict the EGR1 amplified product with these same enzymes. Ligate the vector and the EGR1 promoter.

To prepare 96 well-plates for cell culture, two mls of a coating solution (1:30 dilution of collagen type I (Upstate Biotech Inc. Cat#08-115) in 30% ethanol (filter

sterilized)) is added per one 10 cm plate or 50 ml per well of the 96-well plate. and allowed to air dry for 2 hr.

PC12 cells are routinely grown in RPMI-1640 medium (Bio Whittaker) containing 10% horse serum (JRH BIOSCIENCES, Cat. # 12449-78P), 5% heat-inactivated fetal bovine serum (FBS) supplemented with 100 units/ml penicillin and 100 ug/ml streptomycin on a precoated 10 cm tissue culture dish. One to four split is done every three to four days. Cells are removed from the plates by scraping and resuspended with pipetting up and down for more than 15 times.

Transfect the EGR/SEAP/Neo construct into PC12 using the Lipofectamine protocol described in Example 31. EGR-SEAP/PC12 stable cells are obtained by growing the cells in 300 ug/ml G418. The G418-free medium is used for routine growth but every one to two months. the cells should be re-grown in 300 ug/ml G418 for couple of passages.

To assay for neuronal activity, a 10 cm plate with cells around 70 to 80% confluent is screened by removing the old medium. Wash the cells once with PBS (Phosphate buffered saline). Then starve the cells in low serum medium (RPMI-1640 containing 1% horse serum and 0.5% FBS with antibiotics) overnight.

The next morning, remove the medium and wash the cells with PBS. Scrape off the cells from the plate, suspend the cells well in 2 ml low serum medium. Count the cell number and add more low serum medium to reach final cell density as $5x10^5$ cells/ml.

Add 200 ul of the cell suspension to each well of 96-well plate (equivalent to $1x10^5$ cells/well). Add 50 ul supernatant produced by Example 31, 37 degree C for 48 to 72 hr. As a positive control, a growth factor known to activate PC12 cells through EGR can be used, such as 50 ng/ul of Neuronal Growth Factor (NGF). Over fifty-fold induction of SEAP is typically seen in the positive control wells. SEAP assay the supernatant according to Example 37.

Example 36: High-Throughput Screening Assay for T-cell Activity

NF-KB (Nuclear Factor KB) is a transcription factor activated by a wide variety of agents including the inflammatory cytokines IL-1 and TNF, CD30 and CD40, lymphotoxin-alpha and lymphotoxin-beta, by exposure to LPS or thrombin, and by expression of certain viral gene products. As a transcription factor, NF-KB regulates the expression of genes involved in immune cell activation, control of apoptosis (NF- KB appears to shield cells from apoptosis), B and T-cell development, anti-viral and antimicrobial responses, and multiple stress responses.

In non-stimulated conditions, NF- KB is retained in the cytoplasm with I-KB (Inhibitor KB). However, upon stimulation, I- KB is phosphorylated and degraded, causing NF- KB to shuttle to the nucleus, thereby activating transcription of target genes. Target genes activated by NF- KB include IL-2, IL-6, GM-CSF, ICAM-1 and class 1 MHC.

Due to its central role and ability to respond to a range of stimuli, reporter constructs utilizing the NF-KB promoter element are used to screen the supernatants produced in Example 31. Activators or inhibitors of NF-KB would be useful in treating, preventing, and/or diagnosing diseases. For example, inhibitors of NF-KB could be used to treat those diseases related to the acute or chronic activation of NF-KB, such as rheumatoid arthritis.

To construct a vector containing the NF-KB promoter element, a PCR based strategy is employed. The upstream primer contains four tandem copies of the NF-KB binding site (GGGGACTTTCCC) (SEQ ID NO:1888), 18 bp of sequence complementary to the 5' end of the SV40 early promoter sequence, and is flanked with an XhoI site:

5':GCGGCCTCGAGGGGACTTTCCCGGGGACTTTCCGGGGACTTTCCGGGAC TTTCCATCCTGCCATCTCAATTAG:3' (SEQ ID NO:1889)

The downstream primer is complementary to the 3' end of the SV40 promoter and is flanked with a Hind III site:

5':GCGGCAAGCTTTTTGCAAAGCCTAGGC:3' (SEQ ID NO:1884)

PCR amplification is performed using the SV40 promoter template present in the pB-gal:promoter plasmid obtained from Clontech. The resulting PCR fragment is

digested with XhoI and Hind III and subcloned into BLSK2-. (Stratagene) Sequencing with the T7 and T3 primers confirms the insert contains the following sequence:

5':CTCGAGGGGACTTTCCCGGGGACTTTCCGGGGACTTTCCGGGACTTTCC
ATCTGCCATCTCAATTAGTCAGCAACCATAGTCCCGCCCCTAACTCCGCCC
ATCCCGCCCCTAACTCCGCCCAGTTCCGCCCATTCTCCGCCCCATGGCTGA
CTAATTTTTTTTATTTATGCAGAGGCCGAGGCCGCCTCGGCCTCTGAGCTA
TTCCAGAAGTAGTGAGGAGGCTTTTTTGGAGGCCTAGGCTTTTGCAAAAA
GCTT:3' (SEQ ID NO:1890)

Next, replace the SV40 minimal promoter element present in the pSEAP2-promoter plasmid (Clontech) with this NF-KB/SV40 fragment using XhoI and HindIII. However, this vector does not contain a neomycin resistance gene, and therefore, is not preferred for mammalian expression systems.

In order to generate stable mammalian cell lines, the NF-KB/SV40/SEAP cassette is removed from the above NF-KB/SEAP vector using restriction enzymes SalI and NotI, and inserted into a vector containing neomycin resistance. Particularly, the NF-KB/SV40/SEAP cassette was inserted into pGFP-1 (Clontech), replacing the GFP gene, after restricting pGFP-1 with SalI and NotI.

Once NF-KB/SV40/SEAP/Neo vector is created, stable Jurkat T-cells are created and maintained according to the protocol described in Example 33. Similarly, the method for assaying supernatants with these stable Jurkat T-cells is also described in Example 33. As a positive control, exogenous TNF alpha (0.1,1, 10 ng) is added to wells H9, H10, and H11, with a 5-10 fold activation typically observed.

Example 37: Assay for SEAP Activity

As a reporter molecule for the assays described in Examples 33-36, SEAP activity is assayed using the Tropix Phospho-light Kit (Cat. BP-400) according to the following general procedure. The Tropix Phospho-light Kit supplies the Dilution, Assay, and Reaction Buffers used below.

Prime a dispenser with the 2.5x Dilution Buffer and dispense 15 ul of 2.5x dilution buffer into Optiplates containing 35 ul of a supernatant. Seal the plates with a plastic sealer and incubate at 65 degree C for 30 min. Separate the Optiplates to avoid uneven heating.

Cool the samples to room temperature for 15 minutes. Empty the dispenser and prime with the Assay Buffer. Add 50 ml Assay Buffer and incubate at room temperature 5 min. Empty the dispenser and prime with the Reaction Buffer (see the table below). Add 50 ul Reaction Buffer and incubate at room temperature for 20 minutes. Since the intensity of the chemiluminescent signal is time dependent. and it takes about 10 minutes to read 5 plates on luminometer, one should treat 5 plates at each time and start the second set 10 minutes later.

Read the relative light unit in the luminometer. Set H12 as blank, and print the results. An increase in chemiluminescence indicates reporter activity.

Reaction Buffer Formulation:

# of plates	Rxn buffer diluent (ml)	CSPD (ml)
10	60	3
11	65	3.25
12	70	3.5
13	75	3.75
14	80	4
15	85	4.25
16	90	4.5
17	95	4.75
18	100	5
19	105	5.25
20	110	5.5
21	115	5.75
22	120	6

23	125	6.25
24	130	6.5
25	135	6.75
26	140	7
27	145	7.25
28	150	7.5
29	155	7.75
30	160	8
31	165	8.25
32	170	8.5
33	175	8.75
34	180	9
35	185	9.25
36	190	9.5
37	195	9.75
38	200	10
39	205	10.25
40	210	10.5
41	215	10.75
42	220	11
43	225	11.25
44	230	11.5
45	235	11.75
46	240	12
47	245	12.25
48	250	12.5
49	255	12.75
50	260	13

Example 38: High-Throughput Screening Assay Identifying Changes in Small

Molecule Concentration and Membrane Permeability

Binding of a ligand to a receptor is known to alter intracellular levels of small molecules. such as calcium. potassium, sodium. and pH, as well as alter membrane potential. These alterations can be measured in an assay to identify supernatants which bind to receptors of a particular cell. Although the following protocol describes an assay for calcium. this protocol can easily be modified to detect changes in potassium, sodium, pH, membrane potential, or any other small molecule which is detectable by a fluorescent probe.

The following assay uses Fluorometric Imaging Plate Reader ("FLIPR") to measure changes in fluorescent molecules (Molecular Probes) that bind small molecules. Clearly, any fluorescent molecule detecting a small molecule can be used instead of the calcium fluorescent molecule. fluo-4 (Molecular Probes, Inc.; catalog no. F-14202), used here.

For adherent cells, seed the cells at 10,000 -20,000 cells/well in a Co-star black 96-well plate with clear bottom. The plate is incubated in a CO_2 incubator for 20 hours. The adherent cells are washed two times in Biotek washer with 200 ul of HBSS (Hank's Balanced Salt Solution) leaving 100 ul of buffer after the final wash.

A stock solution of 1 mg/ml fluo-4 is made in 10% pluronic acid DMSO. To load the cells with fluo-4 , 50 ul of 12 ug/ml fluo-4 is added to each well. The plate is incubated at 37 degrees C in a CO_2 incubator for 60 min. The plate is washed four times in the Biotek washer with HBSS leaving 100 ul of buffer.

For non-adherent cells, the cells are spun down from culture media. Cells are re-suspended to $2\text{-}5\times10^6$ cells/ml with HBSS in a 50-ml conical tube. 4 ul of 1 mg/ml fluo-4 solution in 10% pluronic acid DMSO is added to each ml of cell suspension. The tube is then placed in a 37 degrees C water bath for 30-60 min. The cells are washed twice with HBSS, resuspended to 1×10^6 cells/ml, and dispensed into a microplate, 100 ul/well. The plate is centrifuged at 1000 rpm for 5 min. The plate is then washed once in Denley Cell Wash with 200 ul, followed by an aspiration step to 100 ul final volume.

For a non-cell based assay. each well contains a fluorescent molecule. such as fluo-4 . The supernatant is added to the well, and a change in fluorescence, is detected.

To measure the fluorescence of intracellular calcium, the FLIPR is set for the following parameters: (1) System gain is 300-800 mW; (2) Exposure time is 0.4 second: (3) Camera F/stop is F/2: (4) Excitation is 488 nm; (5) Emission is 530 nm; and (6) Sample addition is 50 ul. Increased emission at 530 nm indicates an extracellular signaling event caused by the a molecule, either polypeptide of the present invention or a molecule induced by polypeptide of the present invention, which has resulted in an increase in the intracellular Ca^{++} concentration.

Example 40: High-Throughput Screening Assay Identifying Tyrosine Kinase Activity

The Protein Tyrosine Kinases (PTK) represent a diverse group of transmembrane and cytoplasmic kinases. Within the Receptor Protein Tyrosine Kinase RPTK) group are receptors for a range of mitogenic and metabolic growth factors including the PDGF, FGF, EGF, NGF, HGF and Insulin receptor subfamilies. In addition there are a large family of RPTKs for which the corresponding ligand is unknown. Ligands for RPTKs include mainly secreted small proteins, but also membrane-bound and extracellular matrix proteins.

Activation of RPTK by ligands involves ligand-mediated receptor dimerization, resulting in transphosphorylation of the receptor subunits and activation of the cytoplasmic tyrosine kinases. The cytoplasmic tyrosine kinases include receptor associated tyrosine kinases of the src-family (e.g., src, yes, lck, lyn, fyn) and non-receptor linked and cytosolic protein tyrosine kinases, such as the Jak family, members of which mediate signal transduction triggered by the cytokine superfamily of receptors (e.g., the Interleukins, Interferons, GM-CSF, and Leptin).

Because of the wide range of known factors capable of stimulating tyrosine kinase activity, identifying whether polypeptide of the present invention or a molecule induced by polypeptide of the present invention is capable of activating tyrosine

kinase signal transduction pathways is of interest. Therefore, the following protocol is designed to identify such molecules capable of activating the tyrosine kinase signal transduction pathways.

Seed target cells (e.g., primary keratinocytes) at a density of approximately 25,000 cells per well in a 96 well Loprodyne Silent Screen Plates purchased from Nalge Nunc (Naperville, IL). The plates are sterilized with two 30 minute rinses with 100% ethanol, rinsed with water and dried overnight. Some plates are coated for 2 hr with 100 ml of cell culture grade type I collagen (50 mg/ml), gelatin (2%) or polylysine (50 mg/ml), all of which can be purchased from Sigma Chemicals (St. Louis, MO) or 10% Matrigel purchased from Becton Dickinson (Bedford,MA), or calf serum, rinsed with PBS and stored at 4 degree C. Cell growth on these plates is assayed by seeding 5,000 cells/well in growth medium and indirect quantitation of cell number through use of alamarBlue as described by the manufacturer Alamar Biosciences, Inc. (Sacramento, CA) after 48 hr. Falcon plate covers #3071 from Becton Dickinson (Bedford,MA) are used to cover the Loprodyne Silent Screen Plates. Falcon Microtest III cell culture plates can also be used in some proliferation experiments.

To prepare extracts, A431 cells are seeded onto the nylon membranes of Loprodyne plates (20,000/200ml/well) and cultured overnight in complete medium. Cells are quiesced by incubation in serum-free basal medium for 24 hr. After 5-20 minutes treatment with EGF (60ng/ml) or 50 ul of the supernatant produced in Example 31, the medium was removed and 100 ml of extraction buffer ((20 mM HEPES pH 7.5, 0.15 M NaCl, 1% Triton X-100, 0.1% SDS, 2 mM Na3VO4, 2 mM Na4P2O7 and a cocktail of protease inhibitors (# 1836170) obtained from Boeheringer Mannheim (Indianapolis, IN) is added to each well and the plate is shaken on a rotating shaker for 5 minutes at $4^{o}C$. The plate is then placed in a vacuum transfer manifold and the extract filtered through the 0.45 mm membrane bottoms of each well using house vacuum. Extracts are collected in a 96-well catch/assay plate in the bottom of the vacuum manifold and immediately placed on ice. To obtain extracts clarified by centrifugation, the content of each well, after

detergent solubilization for 5 minutes. is removed and centrifuged for 15 minutes at 4 degree C at 16,000 x g.

Test the filtered extracts for levels of tyrosine kinase activity. Although many methods of detecting tyrosine kinase activity are known, one method is described here.

Generally, the tyrosine kinase activity of a supernatant is evaluated by determining its ability to phosphorylate a tyrosine residue on a specific substrate (a biotinylated peptide). Biotinylated peptides that can be used for this purpose include PSK1 (corresponding to amino acids 6-20 of the cell division kinase cdc2-p34) and PSK2 (corresponding to amino acids 1-17 of gastrin). Both peptides are substrates for a range of tyrosine kinases and are available from Boehringer Mannheim.

The tyrosine kinase reaction is set up by adding the following components in order. First, add 10ul of 5uM Biotinylated Peptide, then 10ul ATP/Mg_{2+} (5mM ATP/50mM $MgCl_2$), then 10ul of 5x Assay Buffer (40mM imidazole hydrochloride, pH7.3, 40 mM beta-glycerophosphate, 1mM EGTA, 100mM $MgCl_2$, 5 mM $MnCl_2$, 0.5 mg/ml BSA), then 5ul of Sodium Vanadate(1mM), and then 5ul of water. Mix the components gently and preincubate the reaction mix at 30 degree C for 2 min. Initial the reaction by adding 10ul of the control enzyme or the filtered supernatant.

The tyrosine kinase assay reaction is then terminated by adding 10 ul of 120mm EDTA and place the reactions on ice.

Tyrosine kinase activity is determined by transferring 50 ul aliquot of reaction mixture to a microtiter plate (MTP) module and incubating at 37 degree C for 20 min. This allows the streptavadin coated 96 well plate to associate with the biotinylated peptide. Wash the MTP module with 300ul/well of PBS four times. Next add 75 ul of anti-phospotyrosine antibody conjugated to horse radish peroxidase(anti-P-Tyr-POD(0.5u/ml)) to each well and incubate at 37 degree C for one hour. Wash the well as above.

Next add 100ul of peroxidase substrate solution (Boehringer Mannheim) and incubate at room temperature for at least 5 mins (up to 30 min). Measure the absorbance of the sample at 405 nm by using ELISA reader. The level of bound

peroxidase activity is quantitated using an ELISA reader and reflects the level of tyrosine kinase activity.

Example 41: High-Throughput Screening Assay Identifying Phosphorylation Activity

As a potential alternative and/or compliment to the assay of protein tyrosine kinase activity described in Example 40, an assay which detects activation (phosphorylation) of major intracellular signal transduction intermediates can also be used. For example, as described below one particular assay can detect tyrosine phosphorylation of the Erk-1 and Erk-2 kinases. However, phosphorylation of other molecules, such as Raf, JNK, p38 MAP, Map kinase kinase (MEK), MEK kinase, Src, Muscle specific kinase (MuSK), IRAK, Tec, and Janus, as well as any other phosphoserine, phosphotyrosine, or phosphothreonine molecule, can be detected by substituting these molecules for Erk-1 or Erk-2 in the following assay.

Specifically, assay plates are made by coating the wells of a 96-well ELISA plate with 0.1ml of protein G (1ug/ml) for 2 hr at room temp, (RT). The plates are then rinsed with PBS and blocked with 3% BSA/PBS for 1 hr at RT. The protein G plates are then treated with 2 commercial monoclonal antibodies (100ng/well) against Erk-1 and Erk-2 (1 hr at RT) (Santa Cruz Biotechnology). (To detect other molecules, this step can easily be modified by substituting a monoclonal antibody detecting any of the above described molecules.) After 3-5 rinses with PBS, the plates are stored at 4 degree C until use.

A431 cells are seeded at 20,000/well in a 96-well Loprodyne filterplate and cultured overnight in growth medium. The cells are then starved for 48 hr in basal medium (DMEM) and then treated with EGF (6ng/well) or 50 ul of the supernatants obtained in Example 31 for 5-20 minutes. The cells are then solubilized and extracts filtered directly into the assay plate.

After incubation with the extract for 1 hr at RT, the wells are again rinsed. As a positive control, a commercial preparation of MAP kinase (10ng/well) is used in place of A431 extract. Plates are then treated with a commercial polyclonal (rabbit)

antibody (1ug/ml) which specifically recognizes the phosphorylated epitope of the Erk-1 and Erk-2 kinases (1 hr at RT). This antibody is biotinylated by standard procedures. The bound polyclonal antibody is then quantitated by successive incubations with Europium-streptavidin and Europium fluorescence enhancing reagent in the Wallac DELFIA instrument (time-resolved fluorescence). An increased fluorescent signal over background indicates a phosphorylation by polypeptide of the present invention or a molecule induced by polypeptide of the present invention.

Example 42: Assay for the Stimulation of Bone Marrow CD34+ Cell Proliferation

This assay is based on the ability of human CD34+ to proliferate in the presence of hematopoietic growth factors and evaluates the ability of isolated polypeptides expressed in mammalian cells to stimulate proliferation of CD34+ cells.

It has been previously shown that most mature precursors will respond to only a single signal. More immature precursors require at least two signals to respond. Therefore, to test the effect of polypeptides on hematopoietic activity of a wide range of progenitor cells, the assay contains a given polypeptide in the presence or absence of other hematopoietic growth factors. Isolated cells are cultured for 5 days in the presence of Stem Cell Factor (SCF) in combination with tested sample. SCF alone has a very limited effect on the proliferation of bone marrow (BM) cells, acting in such conditions only as a "survival" factor. However, combined with any factor exhibiting stimulatory effect on these cells (e.g., IL-3), SCF will cause a synergistic effect. Therefore, if the tested polypeptide has a stimulatory effect on a hematopoietic progenitors, such activity can be easily detected. Since normal BM cells have a low level of cycling cells, it is likely that any inhibitory effect of a given polypeptide, or agonists or antagonists thereof, might not be detected. Accordingly, assays for an inhibitory effect on progenitors is preferably tested in cells that are first subjected to *in vitro* stimulation with SCF+IL+3, and then contacted with the compound that is being evaluated for inhibition of such induced proliferation.

Briefly, CD34+ cells are isolated using methods known in the art. The cells

are thawed and resuspended in medium (QBSF 60 serum-free medium with 1% L-glutamine (500ml) Quality Biological. Inc., Gaithersburg, MD Cat# 160-204-101). After several gentle centrifugation steps at 200 x g, cells are allowed to rest for one hour. The cell count is adjusted to 2.5×10^5 cells/ml. During this time, 100 μl of sterile water is added to the peripheral wells of a 96-well plate. The cytokines that can be tested with a given polypeptide in this assay is rhSCF (R&D Systems, Minneapolis, MN, Cat# 255-SC) at 50 ng/ml alone and in combination with rhSCF and rhIL-3 (R&D Systems, Minneapolis, MN, Cat# 203-ML) at 30 ng/ml. After one hour, 10 μl of prepared cytokines, 50 μl of the supernatants prepared in Example 31 (supernatants at 1:2 dilution = 50 μl) and 20 μl of diluted cells are added to the media which is already present in the wells to allow for a final total volume of 100 μl. The plates are then placed in a 37°C/5% CO_2 incubator for five days.

Eighteen hours before the assay is harvested, 0.5 μCi/well of [3H] Thymidine is added in a 10 μl volume to each well to determine the proliferation rate. The experiment is terminated by harvesting the cells from each 96-well plate to a filtermat using the Tomtec Harvester 96. After harvesting, the filtermats are dried, trimmed and placed into OmniFilter assemblies consisting of one OmniFilter plate and one OmniFilter Tray. 60 μl Microscint is added to each well and the plate sealed with TopSeal-A press-on sealing film A bar code 15 sticker is affixed to the first plate for counting. The sealed plates is then loaded and the level of radioactivity determined via the Packard Top Count and the printed data collected for analysis. The level of radioactivity reflects the amount of cell proliferation.

The studies described in this example test the activity of a given polypeptide to stimulate bone marrow CD34+ cell proliferation. One skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides (e.g., gene therapy), antibodies, agonists, and/or antagonists and fragments and variants thereof. As a nonlimiting example, potential antagonists tested in this assay would be expected to inhibit cell proliferation in the presence of cytokines and/or to increase the inhibition of cell proliferation in the presence of cytokines and a given polypeptide. In contrast, potential agonists tested in this assay would be expected to enhance cell

proliferation and/or to decrease the inhibition of cell proliferation in the presence of cytokines and a given polypeptide.

The ability of a gene to stimulate the proliferation of bone marrow CD34+ cells indicates that polynucleotides and polypeptides corresponding to the gene are useful for the diagnosis and treatment of disorders affecting the immune system and hematopoiesis. Representative uses are described in the "Immune Activity" and "Infectious Disease" sections above, and elsewhere herein.

Example 43: Assay for Extracellular Matrix Enhanced Cell Response (EMECR)

The objective of the Extracellular Matrix Enhanced Cell Response (EMECR) assay is to identify gene products (e.g., isolated polypeptides) that act on the hematopoietic stem cells in the context of the extracellular matrix (ECM) induced signal.

Cells respond to the regulatory factors in the context of signal(s) received from the surrounding microenvironment. For example, fibroblasts, and endothelial and epithelial stem cells fail to replicate in the absence of signals from the ECM. Hematopoietic stem cells can undergo self-renewal in the bone marrow, but not in *in vitro* suspension culture. The ability of stem cells to undergo self-renewal *in vitro* is dependent upon their interaction with the stromal cells and the ECM protein fibronectin (fn). Adhesion of cells to fn is mediated by the $\alpha_5.\beta_1$ and $\alpha_4.\beta_1$ integrin receptors, which are expressed by human and mouse hematopoietic stem cells. The factor(s) which integrate with the ECM environment and responsible for stimulating stem cell self-renewal has not yet been identified. Discovery of such factors should be of great interest in gene therapy and bone marrow transplant applications

Briefly, polystyrene, non tissue culture treated, 96-well plates are coated with fn fragment at a coating concentration of 0.2 $\mu g/cm^2$. Mouse bone marrow cells are plated (1,000 cells/well) in 0.2 ml of serum-free medium. Cells cultured in the presence of IL-3 (5 ng/ml) + SCF (50 ng/ml) would serve as the positive control.

conditions under which little self-renewal but pronounced differentiation of the stem cells is to be expected. Gene products of the invention (e.g., including, but not limited to, polynucleotides and polypeptides of the present invention, and supernatants produced in Example 31), are tested with appropriate negative controls in the presence and absence of SCF(5.0 ng/ml), where test factor supernates represent 10% of the total assay volume. The plated cells are then allowed to grow by incubating in a low oxygen environment (5% CO_2, 7% O_2, and 88% N_2) tissue culture incubator for 7 days. The number of proliferating cells within the wells is then quantitated by measuring thymidine incorporation into cellular DNA. Verification of the positive hits in the assay will require phenotypic characterization of the cells, which can be accomplished by scaling up of the culture system and using appropriate antibody reagents against cell surface antigens and FACScan.

One skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides (e.g., gene therapy), antibodies, agonists, and/or antagonists and fragments and variants thereof.

If a particular polypeptide of the present invention is found to be a stimulator of hematopoietic progenitors, polynucleotides and polypeptides corresponding to the gene encoding said polypeptide may be useful for the diagnosis and treatment of disorders affecting the immune system and hematopoiesis. Representative uses are described in the "Immune Activity" and "Infectious Disease" sections above, and elsewhere herein. The gene product may also be useful in the expansion of stem cells and committed progenitors of various blood lineages, and in the differentiation and/or proliferation of various cell types.

Additionally, the polynucleotides and/or polypeptides of the gene of interest and/or agonists and/or antagonists thereof, may also be employed to inhibit the proliferation and differentiation of hematopoietic cells and therefore may be employed to protect bone marrow stem cells from chemotherapeutic agents during chemotherapy. This antiproliferative effect may allow administration of higher doses of chemotherapeutic agents and, therefore, more effective chemotherapeutic treatment.

Moreover, polynucleotides and polypeptides corresponding to the gene of interest may also be useful for the treatment and diagnosis of hematopoietic related disorders such as, for example, anemia, pancytopenia, leukopenia, thrombocytopenia or leukemia since stromal cells are important in the production of cells of hematopoietic lineages. The uses include bone marrow cell ex-vivo culture, bone marrow transplantation, bone marrow reconstitution, radiotherapy or chemotherapy of neoplasia.

Example 44: Human Dermal Fibroblast and Aortic Smooth Muscle Cell Proliferation

The polypeptide of interest is added to cultures of normal human dermal fibroblasts (NHDF) and human aortic smooth muscle cells (AoSMC) and two co-assays are performed with each sample. The first assay examines the effect of the polypeptide of interest on the proliferation of normal human dermal fibroblasts (NHDF) or aortic smooth muscle cells (AoSMC). Aberrant growth of fibroblasts or smooth muscle cells is a part of several pathological processes, including fibrosis, and restenosis. The second assay examines IL6 production by both NHDF and SMC. IL6 production is an indication of functional activation. Activated cells will have increased production of a number of cytokines and other factors, which can result in a proinflammatory or immunomodulatory outcome. Assays are run with and without co-TNFa stimulation, in order to check for costimulatory or inhibitory activity.

Briefly, on day 1, 96-well black plates are set up with 1000 cells/well (NHDF) or 2000 cells/well (AoSMC) in 100 μl culture media. NHDF culture media contains: Clonetics FB basal media, 1mg/ml hFGF, 5mg/ml insulin, 50mg/ml gentamycin, 2%FBS, while AoSMC culture media contains Clonetics SM basal media, 0.5 μg/ml hEGF, 5mg/ml insulin, 1μg/ml hFGF, 50mg/ml gentamycin, 50 μg/ml Amphotericin B, 5%FBS. After incubation at 37°C for at least 4-5 hours, culture media is aspirated and replaced with growth arrest media. Growth arrest media for NHDF contains fibroblast basal media, 50mg/ml gentamycin, 2% FBS, while growth arrest media for AoSMC contains SM basal media, 50mg/ml gentamycin, 50μg/ml Amphotericin B,

0.4% FBS. Incubate at 37°C until day 2.

On day 2, serial dilutions and templates of the polypeptide of interest are designed such that they always include media controls and known-protein controls. For both stimulation and inhibition experiments, proteins are diluted in growth arrest media. For inhibition experiments, TNFa is added to a final concentration of 2ng/ml (NHDF) or 5ng/ml (AoSMC). Add 1/3 vol media containing controls or polypeptides of the present invention and incubate at 37°C/5% CO_2 until day 5.

Transfer 60µl from each well to another labeled 96-well plate, cover with a plate-sealer, and store at 4°C until Day 6 (for IL6 ELISA). To the remaining 100 µl in the cell culture plate, aseptically add Alamar Blue in an amount equal to 10% of the culture volume (10µl). Return plates to incubator for 3 to 4 hours. Then measure fluorescence with excitation at 530nm and emission at 590nm using the CytoFluor. This yields the growth stimulation/inhibition data.

On day 5, the IL6 ELISA is performed by coating a 96 well plate with 50-100 ul/well of Anti-Human IL6 Monoclonal antibody diluted in PBS, pH 7.4, incubate ON at room temperature.

On day 6, empty the plates into the sink and blot on paper towels. Prepare Assay Buffer containing PBS with 4% BSA. Block the plates with 200 µl/well of Pierce Super Block blocking buffer in PBS for 1-2 hr and then wash plates with wash buffer (PBS, 0.05% Tween-20). Blot plates on paper towels. Then add 50 µl/well of diluted Anti-Human IL-6 Monoclonal, Biotin-labeled antibody at 0.50 mg/ml. Make dilutions of IL-6 stock in media (30, 10, 3, 1, 0.3, 0 ng/ml). Add duplicate samples to top row of plate. Cover the plates and incubate for 2 hours at RT on shaker. Plates are washed with wash buffer and blotted on paper towels. Dilute EU-labeled Streptavidin 1:1000 in Assay buffer, and add 100 µl/well. Cover the plate and incubate 1 h at RT. Plates are again washed with wash buffer and blotted on paper towels. Add 100 µl/well of Enhancement Solution and shake for 5 minutes. Read the plate on the Wallac DELFIA Fluorometer. Readings from triplicate samples in each assay are tabulated and averaged.

A positive result in this assay suggests AoSMC cell proliferation and that the

polypeptide of the present invention may be involved in dermal fibroblast proliferation and/or smooth muscle cell proliferation. A positive result also suggests many potential uses of polypeptides, polynucleotides. agonists and/or antagonists of the polynucleotide/polypeptide of the present invention which gives a positive result. For example, inflammation and immune responses, wound healing, and angiogenesis, as detailed throughout this specification. Particularly, polypeptides of the present invention and polynucleotides of the present invention may be used in wound healing and dermal regeneration, as well as the promotion of vasculargenesis, both of the blood vessels and lymphatics. The growth of vessels can be used in the treatment of, for example, cardiovascular diseases. Additionally, antagonists of polypeptides and polynucleotides of the invention may be useful in treating diseases, disorders, and/or conditions which involve angiogenesis by acting as an anti-vascular (e.g., anti-angiogenesis). These diseases, disorders, and/or conditions are known in the art and/or are described herein, such as, for example, malignancies, solid tumors, benign tumors, for example hemangiomas, acoustic neuromas, neurofibromas, trachomas, and pyogenic granulomas; artheroscleric plaques; ocular angiogenic diseases, for example, diabetic retinopathy, retinopathy of prematurity, macular degeneration, corneal graft rejection, neovascular glaucoma, retrolental fibroplasia, rubeosis, retinoblastoma, uvietis and Pterygia (abnormal blood vessel growth) of the eye; rheumatoid arthritis; psoriasis; delayed wound healing; endometriosis; vasculogenesis; granulations; hypertrophic scars (keloids); nonunion fractures; scleroderma; trachoma; vascular adhesions; myocardial angiogenesis; coronary collaterals; cerebral collaterals; arteriovenous malformations; ischemic limb angiogenesis; Osler-Webber Syndrome; plaque neovascularization; telangiectasia; hemophiliac joints; angiofibroma; fibromuscular dysplasia; wound granulation; Crohn's disease; and atherosclerosis. Moreover, antagonists of polypeptides and polynucleotides of the invention may be useful in treating anti-hyperproliferative diseases and/or anti-inflammatory known in the art and/or described herein.

One skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides (e.g., gene therapy), antibodies, agonists, and/or

antagonists and fragments and variants thereof.

Example 45: Cellular Adhesion Molecule (CAM) Expression on Endothelial Cells

The recruitment of lymphocytes to areas of inflammation and angiogenesis involves specific receptor-ligand interactions between cell surface adhesion molecules (CAMs) on lymphocytes and the vascular endothelium. The adhesion process, in both normal and pathological settings, follows a multi-step cascade that involves intercellular adhesion molecule-1 (ICAM-1), vascular cell adhesion molecule-1 (VCAM-1), and endothelial leukocyte adhesion molecule-1 (E-selectin) expression on endothelial cells (EC). The expression of these molecules and others on the vascular endothelium determines the efficiency with which leukocytes may adhere to the local vasculature and extravasate into the local tissue during the development of an inflammatory response. The local concentration of cytokines and growth factor participate in the modulation of the expression of these CAMs.

Briefly, endothelial cells (e.g., Human Umbilical Vein Endothelial cells (HUVECs)) are grown in a standard 96 well plate to confluence, growth medium is removed from the cells and replaced with 100 µl of 199 Medium (10% fetal bovine serum (FBS)). Samples for testing and positive or negative controls are added to the plate in triplicate (in 10 µl volumes). Plates are then incubated at 37°C for either 5 h (selectin and integrin expression) or 24 h (integrin expression only). Plates are aspirated to remove medium and 100 µl of 0.1% paraformaldehyde-PBS(with Ca++ and Mg++) is added to each well. Plates are held at 4°C for 30 min. Fixative is removed from the wells and wells are washed 1X with PBS(+Ca,Mg) + 0.5% BSA and drained. 10 µl of diluted primary antibody is added to the test and control wells. Anti-ICAM-1-Biotin, Anti-VCAM-1-Biotin and Anti-E-selectin-Biotin are used at a concentration of 10 µg/ml (1:10 dilution of 0.1 mg/ml stock antibody). Cells are incubated at 37°C for 30 min. in a humidified environment. Wells are washed three times with PBS(+Ca.Mg) + 0.5% BSA. 20 µl of diluted ExtrAvidin-Alkaline

Phosphotase (1:5,000 dilution. refered to herein as the working dilution) are added to each well and incubated at 37°C for 30 min. Wells are washed three times with PBS(+Ca,Mg)+0.5% BSA. Dissolve 1 tablet of p-Nitrophenol Phosphate pNPP per 5 ml of glycine buffer (pH 10.4). 100 μl of pNPP substrate in glycine buffer is added to each test well. Standard wells in triplicate are prepared from the working dilution of the ExtrAvidin-Alkaline Phosphotase in glycine buffer: 1:5,000 (10^0) > $10^{-0.5}$ > 10^{-1} > $10^{-1.5}$. 5 μl of each dilution is added to triplicate wells and the resulting AP content in each well is 5.50 ng, 1.74 ng, 0.55 ng, 0.18 ng. 100 μl of pNNP reagent is then added to each of the standard wells. The plate is incubated at 37°C for 4h. A volume of 50 μl of 3M NaOH is added to all wells. The plate is read on a plate reader at 405 nm using the background subtraction option on blank wells filled with glycine buffer only. Additionally, the template is set up to indicate the concentration of AP-conjugate in each standard well [5.50 ng; 1.74 ng; 0.55 ng; 0.18 ng]. Results are indicated as amount of bound AP-conjugate in each sample.

Example 46: Alamar Blue Endothelial Cells Proliferation Assay

This assay may be used to quantitatively determine protein mediated inhibition of bFGF-induced proliferation of Bovine Lymphatic Endothelial Cells (LECs), Bovine Aortic Endothelial Cells (BAECs) or Human Microvascular Uterine Myometrial Cells (UTMECs). This assay incorporates a fluorometric growth indicator based on detection of metabolic activity. A standard Alamar Blue Proliferation Assay is prepared in EGM-2MV with 10 ng /ml of bFGF added as a source of endothelial cell stimulation. This assay may be used with a variety of endothelial cells with slight changes in growth medium and cell concentration. Dilutions of the protein batches to be tested are diluted as appropriate. Serum-free medium (GIBCO SFM) without bFGF is used as a non-stimulated control and Angiostatin or TSP-1 are included as a known inhibitory controls.

Briefly, LEC, BAECs or UTMECs are seeded in growth media at a density of 5000 to 2000 cells/well in a 96 well plate and placed at 37-C overnight. After the

overnight incubation of the cells. the growth media is removed and replaced with GIBCO EC-SFM. The cells are treated with the appropriate dilutions of the protein of interest or control protein sample(s) (prepared in SFM) in triplicate wells with additional bFGF to a concentration of 10 ng/ ml. Once the cells have been treated with the samples, the plate(s) is/are placed back in the 37° C incubator for three days. After three days 10 ml of stock alamar blue (Biosource Cat# DAL1100) is added to each well and the plate(s) is/are placed back in the 37°C incubator for four hours. The plate(s) are then read at 530nm excitation and 590nm emission using the CytoFluor fluorescence reader. Direct output is recorded in relative fluorescence units.

Alamar blue is an oxidation-reduction indicator that both fluoresces and changes color in response to chemical reduction of growth medium resulting from cell growth. As cells grow in culture, innate metabolic activity results in a chemical reduction of the immediate surrounding environment. Reduction related to growth causes the indicator to change from oxidized (non-fluorescent blue) form to reduced (fluorescent red) form. i.e. stimulated proliferation will produce a stronger signal and inhibited proliferation will produce a weaker signal and the total signal is proportional to the total number of cells as well as their metabolic activity. The background level of activity is observed with the starvation medium alone. This is compared to the output observed from the positive control samples (bFGF in growth medium) and protein dilutions.

Example 47: Detection of Inhibition of a Mixed Lymphocyte Reaction

This assay can be used to detect and evaluate inhibition of a Mixed Lymphocyte Reaction (MLR) by gene products (e.g., isolated polypeptides). Inhibition of a MLR may be due to a direct effect on cell proliferation and viability, modulation of costimulatory molecules on interacting cells, modulation of adhesiveness between lymphocytes and accessory cells, or modulation of cytokine production by accessory cells. Multiple cells may be targeted by these polypeptides

since the peripheral blood mononuclear fraction used in this assay includes T, B and natural killer lymphocytes, as well as monocytes and dendritic cells.

Polypeptides of interest found to inhibit the MLR may find application in diseases associated with lymphocyte and monocyte activation or proliferation. These include, but are not limited to, diseases such as asthma, arthritis, diabetes, inflammatory skin conditions, psoriasis, eczema, systemic lupus erythematosus, multiple sclerosis, glomerulonephritis, inflammatory bowel disease, crohn's disease, ulcerative colitis, arteriosclerosis, cirrhosis, graft vs. host disease, host vs. graft disease, hepatitis, leukemia and lymphoma.

Briefly, PBMCs from human donors are purified by density gradient centrifugation using Lymphocyte Separation Medium (LSM®, density 1.0770 g/ml, Organon Teknika Corporation, West Chester, PA). PBMCs from two donors are adjusted to 2×10^6 cells/ml in RPMI-1640 (Life Technologies, Grand Island, NY) supplemented with 10% FCS and 2 mM glutamine. PBMCs from a third donor is adjusted to 2×10^5 cells/ml. Fifty microliters of PBMCs from each donor is added to wells of a 96-well round bottom microtiter plate. Dilutions of test materials (50 μl) is added in triplicate to microtiter wells. Test samples (of the protein of interest) are added for final dilution of 1:4; rhuIL-2 (R&D Systems, Minneapolis, MN, catalog number 202-IL) is added to a final concentration of 1 μg/ml; anti-CD4 mAb (R&D Systems, clone 34930.11, catalog number MAB379) is added to a final concentration of 10 μg/ml. Cells are cultured for 7-8 days at 37°C in 5% CO_2, and 1 μC of [^{3}H] thymidine is added to wells for the last 16 hrs of culture. Cells are harvested and thymidine incorporation determined using a Packard TopCount. Data is expressed as the mean and standard deviation of triplicate determinations.

Samples of the protein of interest are screened in separate experiments and compared to the negative control treatment, anti-CD4 mAb, which inhibits proliferation of lymphocytes and the positive control treatment, IL-2 (either as recombinant material or supernatant), which enhances proliferation of lymphocytes.

One skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides (e.g., gene therapy), antibodies, agonists, and/or

antagonists and fragments and variants thereof.

It will be clear that the invention may be practiced otherwise than as particularly described in the foregoing description and examples. Numerous modifications and variations of the present invention are possible in light of the above teachings and, therefore, are within the scope of the appended claims.

The entire disclosure of each document cited (including patents, patent applications, journal articles, abstracts, laboratory manuals, books, or other disclosures) in the Background of the Invention, Detailed Description, and Examples is hereby incorporated herein by reference. Further, the hard copy of the sequence listing submitted herewith and the corresponding computer readable form are both incorporated herein by reference in their entireties. Moreover, the hard copy of and the corresponding computer readable form of the Sequence Listing of Serial No. 60/124,270 are also incorporated herein by reference in their entireties.

Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13*bis*)

A. The indications made below relate to the microorganism referred to in the description on page 100, line N/A.

B. IDENTIFICATION OF DEPOSIT — Further deposits are identified on an additional sheet ☐

Name of depositary institution American Type Culture Collection

Address of depositary institution *(including postal code and country)*
10801 University Boulevard
Manassas, Virginia 20110-2209
United States of America

Date of deposit	Accession Number
20 May 1997	209059

C. ADDITIONAL INDICATIONS *(leave blank if not applicable)* — This information is continued on an additional sheet ☐

D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE *(if the indications are not for all designated States)*

Europe
In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).

E. SEPARATE FURNISHING OF INDICATIONS *(leave blank if not applicable)*

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Form PCT/RO/134 (July 1992)

ATCC Deposit No.: 209059

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused. or is abandoned and no longer subject to reinstatement, or is withdrawn. the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner. the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

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AUSTRALIA

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FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

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ATCC Deposit No.: 209059

DENMARK

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SWEDEN

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NETHERLANDS

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Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13*bis*)

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B. IDENTIFICATION OF DEPOSIT — Further deposits are identified on an additional sheet ☐

Name of depositary institution American Type Culture Collection

Address of depositary institution *(including postal code and country)*
10801 University Boulevard
Manassas, Virginia 20110-2209
United States of America

Date of deposit	Accession Number
20 May 1997	209060

C. ADDITIONAL INDICATIONS *(leave blank if not applicable)* — This information is continued on an additional sheet ☐

D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE *(if the indications are not for all designated States)*

Europe
In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).

E. SEPARATE FURNISHING OF INDICATIONS *(leave blank if not applicable)*

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ATCC Deposit No.: 209060

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner. the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

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AUSTRALIA

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FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

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ATCC Deposit No.: 209060

DENMARK

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SWEDEN

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NETHERLANDS

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Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13*bis*)

A. The indications made below relate to the microorganism referred to in the description on page 100, line N/A.

B. IDENTIFICATION OF DEPOSIT — Further deposits are identified on an additional sheet ☐

Name of depositary institution American Type Culture Collection

Address of depositary institution *(including postal code and country)*
10801 University Boulevard
Manassas, Virginia 20110-2209
United States of America

Date of deposit	Accession Number
20 May 1997	209061

C. ADDITIONAL INDICATIONS *(leave blank if not applicable)* — This information is continued on an additional sheet ☐

D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE *(if the indications are not for all designated States)*

Europe
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CANADA

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ATCC Deposit No.: 209061

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Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13*bis*)

A. The indications made below relate to the microorganism referred to in the description on page 100, line N/A.

B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet ☐

Name of depositary institution American Type Culture Collection

Address of depositary institution *(including postal code and country)*
10801 University Boulevard
Manassas, Virginia 20110-2209
United States of America

Date of deposit	Accession Number
20 May 1997	209062

C. ADDITIONAL INDICATIONS *(leave blank if not applicable)* This information is continued on an additional sheet ☐

D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE *(if the indications are not for all designated States)*

Europe
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Form PCT/RO/134 (July 1992)

ATCC Deposit No.: 209062

CANADA

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AUSTRALIA

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FINLAND

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UNITED KINGDOM

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ATCC Deposit No.: 209062

DENMARK

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NETHERLANDS

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Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13*bis*)

A. The indications made below relate to the microorganism referred to in the description on page 100 , line N/A .

B. IDENTIFICATION OF DEPOSIT — Further deposits are identified on an additional sheet ☐

Name of depositary institution American Type Culture Collection

Address of depositary institution *(including postal code and country)*
10801 University Boulevard
Manassas. Virginia 20110-2209
United States of America

Date of deposit	Accession Number
20 May 1997	209063

C. ADDITIONAL INDICATIONS *(leave blank if not applicable)* — This information is continued on an additional sheet ☐

D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE *(if the indications are not for all designated States)*

Europe
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ATCC Deposit No.: 209063

CANADA

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NORWAY

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

AUSTRALIA

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

ATCC Deposit No.: 209063

DENMARK

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later that at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

SWEDEN

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NETHERLANDS

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13*bis*)

A. The indications made below relate to the microorganism referred to in the description on page 100, line N/A.

B. IDENTIFICATION OF DEPOSIT — Further deposits are identified on an additional sheet ☐

Name of depositary institution American Type Culture Collection

Address of depositary institution *(including postal code and country)*
10801 University Boulevard
Manassas, Virginia 20110-2209
United States of America

Date of deposit	Accession Number
20 May 1997	209064

C. ADDITIONAL INDICATIONS *(leave blank if not applicable)* — This information is continued on an additional sheet ☐

D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE *(if the indications are not for all designated States)*

Europe
In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).

E. SEPARATE FURNISHING OF INDICATIONS *(leave blank if not applicable)*

The indications listed below will be submitted to the International Bureau later *(specify the general nature of the indications e.g., "Accession Number of Deposit")*

For receiving Office use only	For International Bureau use only
☑ This sheet was received with the international application	☐ This sheet was received by the International Bureau on:
Authorized officer Sonya D. Barnes PCT/Internat'l Appl Processing Div (703) 305-3665	Authorized officer

Form PCT/RO/134 (July 1992)

ATCC Deposit No.: 209064

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

AUSTRALIA

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FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

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ATCC Deposit No.: 209064

DENMARK

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SWEDEN

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NETHERLANDS

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Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13*bis*)

A. The indications made below relate to the microorganism referred to in the description on page 100, line N/A.

B. IDENTIFICATION OF DEPOSIT — Further deposits are identified on an additional sheet ☐

Name of depositary institution American Type Culture Collection

Address of depositary institution *(including postal code and country)*
10801 University Boulevard
Manassas, Virginia 20110-2209
United States of America

Date of deposit	Accession Number
20 May 1997	209065

C. ADDITIONAL INDICATIONS *(leave blank if not applicable)* — This information is continued on an additional sheet ☐

D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE *(if the indications are not for all designated States)*

Europe
In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of sucn a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).

E. SEPARATE FURNISHING OF INDICATIONS *(leave blank if not applicable)*

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Form PCT/RO/134 (July 1992)

ATCC Deposit No.: 209065

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

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AUSTRALIA

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FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

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ATCC Deposit No.: 209065

DENMARK

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SWEDEN

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NETHERLANDS

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Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13*bis*)

A. The indications made below relate to the microorganism referred to in the description on page 100, line N/A.

B. IDENTIFICATION OF DEPOSIT — Further deposits are identified on an additional sheet ☐

Name of depositary institution American Type Culture Collection

Address of depositary institution *(including postal code and country)*
10801 University Boulevard
Manassas, Virginia 20110-2209
United States of America

Date of deposit	Accession Number
20 May 1997	209066

C. ADDITIONAL INDICATIONS *(leave blank if not applicable)* — This information is continued on an additional sheet ☐

D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE *(if the indications are not for all designated States)*

Europe
In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).

E. SEPARATE FURNISHING OF INDICATIONS *(leave blank if not applicable)*

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ATCC Deposit No.: 209066

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

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AUSTRALIA

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FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

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ATCC Deposit No.: 209066

DENMARK

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SWEDEN

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NETHERLANDS

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13*bis*)

A. The indications made below relate to the microorganism referred to in the description on page 100, line N/A

B. IDENTIFICATION OF DEPOSIT — Further deposits are identified on an additional sheet ☐

Name of depositary institution American Type Culture Collection

Address of depositary institution *(including postal code and country)*
10801 University Boulevard
Manassas, Virginia 20110-2209
United States of America

Date of deposit	Accession Number
20 May 1997	209067

C. ADDITIONAL INDICATIONS *(leave blank if not applicable)* — This information is continued on an additional sheet ☐

D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE *(if the indications are not for all designated States)*

Europe
In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).

E. SEPARATE FURNISHING OF INDICATIONS *(leave blank if not applicable)*

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ATCC Deposit No.: 209067

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

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AUSTRALIA

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FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

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ATCC Deposit No.: 209067

DENMARK

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SWEDEN

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NETHERLANDS

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Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13*bis*)

A. The indications made below relate to the microorganism referred to in the description on page 100, line N/A.

B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet ☐

Name of depositary institution American Type Culture Collection

Address of depositary institution *(including postal code and country)*
10801 University Boulevard
Manassas, Virginia 20110-2209
United States of America

Date of deposit	Accession Number
20 May 1997	209068

C. ADDITIONAL INDICATIONS *(leave blank if not applicable)* This information is continued on an additional sheet ☐

D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE *(if the indications are not for all designated States)*

Europe
In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).

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Form PCT/RO/134 (July 1992)

ATCC Deposit No.: 209068

CANADA

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NORWAY

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FINLAND

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UNITED KINGDOM

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ATCC Deposit No.: 209068

DENMARK

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NETHERLANDS

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Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13*bis*)

A. The indications made below relate to the microorganism referred to in the description on page 100, line N/A.

B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet ☐

Name of depositary institution American Type Culture Collection

Address of depositary institution *(including postal code and country)*
10801 University Boulevard
Manassas, Virginia 20110-2209
United States of America

Date of deposit	Accession Number
20 May 1997	209069

C. ADDITIONAL INDICATIONS *(leave blank if not applicable)* This information is continued on an additional sheet ☐

D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE *(if the indications are not for all designated States)*

Europe
In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).

E. SEPARATE FURNISHING OF INDICATIONS *(leave blank if not applicable)*

The indications listed below will be submitted to the International Bureau later *(specify the general nature of the indications e.g., "Accession Number of Deposit")*

For receiving Office use only	For International Bureau use only
☑ This sheet was received with the international application	☐ This sheet was received by the International Bureau on:
Authorized officer Sonya D. Barnes PCT/Internat'l Appl Processing Div (703) 305-3665	Authorized officer

ATCC Deposit No.: 209069

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

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AUSTRALIA

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FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

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ATCC Deposit No.: 209069

DENMARK

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SWEDEN

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NETHERLANDS

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Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13*bis*)

A. The indications made below relate to the microorganism referred to in the description on page 100, line N/A.

B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet ☐

Name of depositary institution American Type Culture Collection

Address of depositary institution *(including postal code and country)*
10801 University Boulevard
Manassas, Virginia 20110-2209
United States of America

Date of deposit	Accession Number
12 January 1998	209579

C. ADDITIONAL INDICATIONS *(leave blank if not applicable)* This information is continued on an additional sheet ☐

D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE *(if the indications are not for all designated States)*

Europe
In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).

E. SEPARATE FURNISHING OF INDICATIONS *(leave blank if not applicable)*

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Authorized officer Sonya D. Barnes PCT/Internat'l Appl Processing Div (703) 305-3865	Authorized officer

Form PCT/RO/134 (July 1992)

ATCC Deposit No.: 209579

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

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AUSTRALIA

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FINLAND

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UNITED KINGDOM

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ATCC Deposit No.: 209579

DENMARK

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SWEDEN

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NETHERLANDS

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Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13*bis*)

A. The indications made below relate to the microorganism referred to in the description on page 100, line N/A.

B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet ☐

Name of depositary institution American Type Culture Collection

Address of depositary institution *(including postal code and country)*
10801 University Boulevard
Manassas, Virginia 20110-2209
United States of America

Date of deposit	Accession Number
12 January 1998	209578

C. ADDITIONAL INDICATIONS *(leave blank if not applicable)* This information is continued on an additional sheet ☐

D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE *(if the indications are not for all designated States)*

Europe
In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).

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ATCC Deposit No.: 209578

CANADA

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NORWAY

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AUSTRALIA

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FINLAND

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UNITED KINGDOM

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ATCC Deposit No.: 209578

DENMARK

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SWEDEN

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NETHERLANDS

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Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13*bis*)

A. The indications made below relate to the microorganism referred to in the description on page 100, line N/A.

B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet ☐

Name of depositary institution American Type Culture Collection

Address of depositary institution *(including postal code and country)*
10801 University Boulevard
Manassas, Virginia 20110-2209
United States of America

Date of deposit	Accession Number
16 July 1998	203067

C. ADDITIONAL INDICATIONS *(leave blank if not applicable)* This information is continued on an additional sheet ☐

D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE *(if the indications are not for all designated States)*

Europe
In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).

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Form PCT/RO/134 (July 1992)

ATCC Deposit No.: 203067

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

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AUSTRALIA

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FINLAND

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UNITED KINGDOM

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ATCC Deposit No.: 203067

DENMARK

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SWEDEN

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NETHERLANDS

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Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13*bis*)

A. The indications made below relate to the microorganism referred to in the description on page 100, line N/A.

B. IDENTIFICATION OF DEPOSIT — Further deposits are identified on an additional sheet ☐

Name of depositary institution American Type Culture Collection

Address of depositary institution *(including postal code and country)*
10801 University Boulevard
Manassas, Virginia 20110-2209
United States of America

Date of deposit	Accession Number
16 July 1998	203068

C. ADDITIONAL INDICATIONS *(leave blank if not applicable)* — This information is continued on an additional sheet ☐

D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE *(if the indications are not for all designated States)*

Europe
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ATCC Deposit No.: 203068

CANADA

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NORWAY

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FINLAND

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UNITED KINGDOM

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ATCC Deposit No.: 203068

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Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13*bis*)

A. The indications made below relate to the microorganism referred to in the description on page 100, line N/A.

B. IDENTIFICATION OF DEPOSIT — Further deposits are identified on an additional sheet ☐

Name of depositary institution American Type Culture Collection

Address of depositary institution *(including postal code and country)*
10801 University Boulevard
Manassas, Virginia 20110-2209
United States of America

Date of deposit	Accession Number
01 February 1999	203609

C. ADDITIONAL INDICATIONS *(leave blank if not applicable)* — This information is continued on an additional sheet ☐

D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE *(if the indications are not for all designated States)*

Europe
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Authorized officer Sonya D. Barnes, PCT/Internat'l Appl Processing Div, (703) 305-3665	Authorized officer

Form PCT/RO/134 (July 1992)

ATCC Deposit No.: 203609

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

AUSTRALIA

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

ATCC Deposit No.: 203609

DENMARK

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later that at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

SWEDEN

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

NETHERLANDS

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13*bis*)

A. The indications made below relate to the microorganism referred to in the description on page 100, line N/A.

B. IDENTIFICATION OF DEPOSIT — Further deposits are identified on an additional sheet ☐

Name of depositary institution American Type Culture Collection

Address of depositary institution *(including postal code and country)*
10801 University Boulevard
Manassas, Virginia 20110-2209
United States of America

Date of deposit	Accession Number
01 February 1999	203610

C. ADDITIONAL INDICATIONS *(leave blank if not applicable)* — This information is continued on an additional sheet ☐

D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE *(if the indications are not for all designated States)*

Europe
In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).

E. SEPARATE FURNISHING OF INDICATIONS *(leave blank if not applicable)*

The indications listed below will be submitted to the International Bureau later *(specify the general nature of the indications e.g., "Accession Number of Deposit")*

For receiving Office use only	For International Bureau use only
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Authorized officer Sonya D. Barnes PCT/Internat'l Appl Processing Div (703) 305-3665	Authorized officer

Form PCT/RO/134 (July 1992)

ATCC Deposit No.: 203610

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

AUSTRALIA

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FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

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ATCC Deposit No.: 203610

DENMARK

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later that at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

SWEDEN

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NETHERLANDS

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Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13*bis*)

A. The indications made below relate to the microorganism referred to in the description on page 100, line N/A.

B. IDENTIFICATION OF DEPOSIT — Further deposits are identified on an additional sheet ☐

Name of depositary institution American Type Culture Collection

Address of depositary institution *(including postal code and country)*
10801 University Boulevard
Manassas. Virginia 20110-2209
United States of America

Date of deposit	Accession Number
17 November 1998	203485

C. ADDITIONAL INDICATIONS *(leave blank if not applicable)* — This information is continued on an additional sheet ☐

D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE *(if the indications are not for all designated States)*

Europe
In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).

E. SEPARATE FURNISHING OF INDICATIONS *(leave blank if not applicable)*

The indications listed below will be submitted to the International Bureau later *(specify the general nature of the indications e.g., "Accession Number of Deposit")*

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Authorized officer Sonya D. Barnes PCT/Internat'l Appl Processing Div (703) 305-3665	Authorized officer

ATCC Deposit No.: 203485

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

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AUSTRALIA

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FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

ATCC Deposit No.: 203485

DENMARK

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SWEDEN

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NETHERLANDS

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Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13*bis*)

A. The indications made below relate to the microorganism referred to in the description on page 100, line N/A.

B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet ☐

Name of depositary institution American Type Culture Collection

Address of depositary institution *(including postal code and country)*
10801 University Boulevard
Manassas. Virginia 20110-2209
United States of America

Date of deposit	Accession Number
18 June 1999	PTA-252

C. ADDITIONAL INDICATIONS *(leave blank if not applicable)* This information is continued on an additional sheet ☐

D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE *(if the indications are not for all designated States)*

Europe
In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).

E. SEPARATE FURNISHING OF INDICATIONS *(leave blank if not applicable)*

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ATCC Deposit No.: PTA-252

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

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AUSTRALIA

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FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

ATCC Deposit No.: PTA-252

DENMARK

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SWEDEN

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NETHERLANDS

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13*bis*)

A. The indications made below relate to the microorganism referred to in the description on page 100, line N/A.

B. IDENTIFICATION OF DEPOSIT — Further deposits are identified on an additional sheet ☐

Name of depositary institution American Type Culture Collection

Address of depositary institution *(including postal code and country)*
10801 University Boulevard
Manassas, Virginia 20110-2209
United States of America

Date of deposit	Accession Number
18 June 1999	PTA-253

C. ADDITIONAL INDICATIONS *(leave blank if not applicable)* — This information is continued on an additional sheet ☐

D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE *(if the indications are not for all designated States)*

Europe
In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).

E. SEPARATE FURNISHING OF INDICATIONS *(leave blank if not applicable)*

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Authorized officer Sonya D. Barnes PCT/Internat'l Appl Processing Div (703) 305-3665	Authorized officer

ATCC Deposit No.: PTA-253

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

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AUSTRALIA

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FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

ATCC Deposit No.: PTA-253

DENMARK

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SWEDEN

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NETHERLANDS

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Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13*bis*)

A. The indications made below relate to the microorganism referred to in the description on page 100, line N/A.

B. **IDENTIFICATION OF DEPOSIT** — Further deposits are identified on an additional sheet ☐

Name of depositary institution American Type Culture Collection

Address of depositary institution *(including postal code and country)*
10801 University Boulevard
Manassas, Virginia 20110-2209
United States of America

Date of deposit	Accession Number
22 December 1999	PTA-1081

C. **ADDITIONAL INDICATIONS** *(leave blank if not applicable)* — This information is continued on an additional sheet ☐

D. **DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE** *(if the indications are not for all designated States)*

Europe
In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).

E. **SEPARATE FURNISHING OF INDICATIONS** *(leave blank if not applicable)*

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Authorized officer Sonya D. Barnes PCT/Internat'l Appl Processing Div (703) 305-3665	Authorized officer

ATCC Deposit No.: PTA-1081

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

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AUSTRALIA

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FINLAND

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UNITED KINGDOM

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ATCC Deposit No.: PTA-1081

DENMARK

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SWEDEN

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

NETHERLANDS

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

What Is Claimed Is:

1. An isolated nucleic acid molecule comprising a polynucleotide having a nucleotide sequence at least 95% identical to a sequence selected from the group consisting of:

(a) a polynucleotide fragment of SEQ ID NO:X or a polynucleotide fragment of the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;

(b) a polynucleotide encoding a polypeptide fragment of SEQ ID NO:Y or a polypeptide fragment encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;

(c) a polynucleotide encoding a polypeptide fragment of a polypeptide encoded by SEQ ID NO:X or a polypeptide fragment encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;

(d) a polynucleotide encoding a polypeptide domain of SEQ ID NO:Y or a polypeptide domain encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;

(e) a polynucleotide encoding a polypeptide epitope of SEQ ID NO:Y or a polypeptide epitope encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;

(f) a polynucleotide encoding a polypeptide of SEQ ID NO:Y or the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X, having biological activity;

(g) a polynucleotide which is a variant of SEQ ID NO:X;

(h) a polynucleotide which is an allelic variant of SEQ ID NO:X;

(i) a polynucleotide which encodes a species homologue of the SEQ ID NO:Y;

(j) a polynucleotide capable of hybridizing under stringent conditions to any one of the polynucleotides specified in (a)-(i), wherein said polynucleotide does not hybridize under stringent conditions to a nucleic acid molecule having a nucleotide

sequence of only A residues or of only T residues.

2. The isolated nucleic acid molecule of claim 1, wherein the polynucleotide fragment comprises a nucleotide sequence encoding a protein.

3. The isolated nucleic acid molecule of claim 1, wherein the polynucleotide fragment comprises a nucleotide sequence encoding the sequence identified as SEQ ID NO:Y or the polypeptide encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X.

4. The isolated nucleic acid molecule of claim 1, wherein the polynucleotide fragment comprises the entire nucleotide sequence of SEQ ID NO:X or the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X.

5. The isolated nucleic acid molecule of claim 2, wherein the nucleotide sequence comprises sequential nucleotide deletions from either the C-terminus or the N-terminus.

6. The isolated nucleic acid molecule of claim 3, wherein the nucleotide sequence comprises sequential nucleotide deletions from either the C-terminus or the N-terminus.

7. A recombinant vector comprising the isolated nucleic acid molecule of claim 1.

8. A method of making a recombinant host cell comprising the isolated nucleic acid molecule of claim 1.

9. A recombinant host cell produced by the method of claim 8.

10. The recombinant host cell of claim 9 comprising vector sequences.

11. An isolated polypeptide comprising an amino acid sequence at least 95% identical to a sequence selected from the group consisting of:

(a) a polypeptide fragment of SEQ ID NO:Y or of the sequence encoded by the cDNA included in the related cDNA clone;

(b) a polypeptide fragment of SEQ ID NO:Y or of the sequence encoded by the cDNA included in the related cDNA clone, having biological activity;

(c) a polypeptide domain of SEQ ID NO:Y or of the sequence encoded by the cDNA included in the related cDNA clone;

(d) a polypeptide epitope of SEQ ID NO:Y or of the sequence encoded by the cDNA included in the related cDNA clone;

(e) a full length protein of SEQ ID NO:Y or of the sequence encoded by the cDNA included in the related cDNA clone;

(f) a variant of SEQ ID NO:Y;

(g) an allelic variant of SEQ ID NO:Y; or

(h) a species homologue of the SEQ ID NO:Y.

12. The isolated polypeptide of claim 11, wherein the full length protein comprises sequential amino acid deletions from either the C-terminus or the N-terminus.

13. An isolated antibody that binds specifically to the isolated polypeptide of claim 11.

14. A recombinant host cell that expresses the isolated polypeptide of claim 11.

15. A method of making an isolated polypeptide comprising:

(a) culturing the recombinant host cell of claim 14 under conditions such that said polypeptide is expressed; and

(b) recovering said polypeptide.

16. The polypeptide produced by claim 15.

17. A method for preventing, treating, or ameliorating a medical condition, comprising administering to a mammalian subject a therapeutically effective amount of the polypeptide of claim 11 or the polynucleotide of claim 1.

18. A method of diagnosing a pathological condition or a susceptibility to a pathological condition in a subject comprising:

(a) determining the presence or absence of a mutation in the polynucleotide of claim 1; and

(b) diagnosing a pathological condition or a susceptibility to a pathological condition based on the presence or absence of said mutation.

19. A method of diagnosing a pathological condition or a susceptibility to a pathological condition in a subject comprising:

(a) determining the presence or amount of expression of the polypeptide of claim 11 in a biological sample; and

(b) diagnosing a pathological condition or a susceptibility to a pathological condition based on the presence or amount of expression of the polypeptide.

20. A method for identifying a binding partner to the polypeptide of claim 11 comprising:

(a) contacting the polypeptide of claim 11 with a binding partner; and

(b) determining whether the binding partner effects an activity of the polypeptide.

21. The gene corresponding to the cDNA sequence of SEQ ID NO:Y.

22. A method of identifying an activity in a biological assay, wherein the method comprises:

(a) expressing SEQ ID NO:X in a cell;

(b) isolating the supernatant;

(c) detecting an activity in a biological assay; and

(d) identifying the protein in the supernatant having the activity.

23. The product produced by the method of claim 20.

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<213> Homo sapiens

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<220>
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<222> (1478)
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<210> 12
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<212> DNA
<213> Homo sapiens

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<223> n equals a,t,g, or c

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<222> (1407)
<223> n equals a,t,g, or c

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<210> 13
<211> 3548
<212> DNA
<213> Homo sapiens

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<222> (389)
<223> n equals a,t,g, or c

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<222> (1103)
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<211> 466
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<213> Homo sapiens

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<222> (95)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (433)

<223> n equals a,t,g, or c

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<212> DNA
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<210> 16
<211> 2805
<212> DNA
<213> Homo sapiens

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<222> (11)
<223> n equals a,t,g, or c

<220>
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<222> (31)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (37)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (48)
<223> n equals a,t,g, or c

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<210> 17
<211> 710
<212> DNA
<213> Homo sapiens

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<222> (21)
<223> n equals a,t,g, or c

<220>
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<222> (608)
<223> n equals a,t,g, or c

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<210> 18
<211> 992
<212> DNA
<213> Homo sapiens

<400> 18

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<211> 1795
<212> DNA
<213> Homo sapiens

<400> 19

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<211> 709
<212> DNA
<213> Homo sapiens

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<222> (708)
<223> n equals a,t,g, or c

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<210> 21
<211> 649
<212> DNA
<213> Homo sapiens

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<221> misc feature
<222> (534)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (596)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (600)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (624)

<223> n equals a,t,g, or c

<400> 21
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<210> 22
<211> 1607
<212> DNA
<213> Homo sapiens

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<221> misc feature
<222> (820)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (821)
<223> n equals a,t,g, or c

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<210> 23
<211> 578
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (17)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (27)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (528)
<223> n equals a,t,g, or c

<400> 23
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<210> 24
<211> 2756
<212> DNA
<213> Homo sapiens

<220>
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<222> (20)
<223> n equals a,t,g, or c

<220>

<221> misc feature
<222> (109)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (249)
<223> n equals a,t,g, or c

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<210> 25
<211> 2680
<212> DNA
<213> Homo sapiens

<400> 25
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<210> 26
<211> 1859
<212> DNA
<213> Homo sapiens

<400> 26
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<210> 27
<211> 634
<212> DNA
<213> Homo sapiens

<220>

<221> misc feature
<222> (525)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (561)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (629)
<223> n equals a,t,g, or c

<400> 27
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<210> 28
<211> 1632
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (926)
<223> n equals a,t,g, or c

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<210> 29
<211> 2539
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (105)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (936)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (951)
<223> n equals a,t,g, or c

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ggcacacggt gaacagccca tccctggtct catcaattat tcccatcatt caacagatga 180
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<210> 30
<211> 494
<212> DNA
<213> Homo sapiens

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<210> 31
<211> 1263
<212> DNA
<213> Homo sapiens

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<210> 32
<211> 337
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (337)
<223> n equals a,t,g, or c

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<210> 33
<211> 1742
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (9)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (17)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1576)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1578)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1621)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1724)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1733)
<223> n equals a,t,g, or c

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<210> 34
<211> 1166
<212> DNA
<213> Homo sapiens

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<222> (965)
<223> n equals a,t,g, or c

<220>
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<222> (1094)
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acacagtgga taactacgcc gtcctccagc tggatatagt gtggtgttam ttccgcctgg 960
aacanctgga atgccttgat gatgcagaaa aaaaattaaa cttggsccag aaatgcttta 1020
aaaattgtta cggagaaaat cmtcagagac tggtccacat aaaagtatgt tcctgggaat 1080

tcatcttatn ggcncgttga gtccatttct agcatttgtg tttattcctg ttaaagtatt 1140
tgaactactg ccagaaggtg gatttt 1166

<210> 35
<211> 1049
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (17)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (38)
<223> n equals a,t,g, or c

<400> 35
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ccgcgaaagc cccaggggcc attggaccct acagtcaagc tgtattagtc gacaggacca 180
tttacatttc aggacagata ggcatggacc cttcaagtgg acagcttgtg tcaggagggg 240
tagcagaaga agctaaacaa gctcttaaaa acatgggtga aattctgaaa gctgcaggct 300
gtgacttcac taacgtggtg aaaacaactg ttcttctggc tgacataaat gacttcaata 360
ctgtcaatga aatctacaaa cagtatttca agagtaattt tcctgctaga gctgcttacc 420
aagttgctgc tttacccaaa ggcagccgaa ttgaaattga agcagtagct atccaaggac 480
cactgacaac ggcatcacta taagtgggcc cagtgctgtg tagtctggaa ttgttaacat 540
tttaattttt acaattgatg taacatctta attaaccttt taattttcac aattgatgac 600
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tgaacatgaa tattagagaa ggaatccagt tacttttta aattacacct gtgtgcacct 720
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aaaaaaaaaa aaaaaaaaaa aaaactcga 1049

<210> 36
<211> 489
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (353)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (383)

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (385)
<223> n equals a,t,g, or c

<400> 36
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attgccagga ttttgcaggt tagattgtac tacagcactg cctttggctt gccagactct 120
ggagtcccca cattttcatc ctgttctcag gaaaacactt tgacccactt gaagctctga 180
gctactgctt cacagcttcc tggggtcagt ctccagccaa aaccatagat atcccaamwg 240
cagccaaacc acggctctgg gcgaaggaac gattaggttt actstaggtt tccacacccct 300
gatgctcctg gcctttaatt tgacaactct ggactgccag gttttcacag acngttggac 360
atggattcaa gattgggaat gtnangggat ggtttggcaa cagtgtttgc tttgagcagt 420
tttaaaattt ggccaggaga ttcatgtgag caagaaatgt tagataccag tttttttgggg 480
tcaaggggg 489

<210> 37
<211> 598
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (595)
<223> n equals a,t,g, or c

<400> 37
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cagaattggt ctaataaaaa taacgaccat ttctttctac tccagtctct ttcacaaact 180
tcttagtgaa aatgacaagt gaggcccttc agtaggggca ttttcagtgg agataatagc 240
ggcagacctg agaccttggg ctaggtagtt tattctcatt tctgaacaga tgatgaattt 300
tctcagatga ccctaagaaa ttgttttacc aaaaacaaag tgatctattt gctttgggag 360
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tctgtccggt cgtggttctg tccagccatg atccgggagt cctagcttgc taatggamca 480
cctgagatgt tccttatggc tcaaggctwa aattgaaggt gggaaccacc tgaagcctcc 540
gtggggaggc cttgsgggag gttwggccta aargcattag gaagatacta gcttnagg 598

<210> 38
<211> 762
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (725)
<223> n equals a,t,g, or c

<220>

<221> misc feature
<222> (730)
<223> n equals a,t,g, or c

<400> 38
gtctttggga actcaaaaag ttatctgtgc attttcatcc ctccgtggcc ctttttgcaa 60
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taatgagatt tttggatcga tttgtatacc gaaatccaaa gccccataaa ggcaaagaaa 180
acacagatag tgttgtgatg cagccgaaaa gaaaacattt tattaaggat attcgtcatc 240
ttcctgtgaa cagtaaggag ttccttgcaa aagaagaaag ccaaatacca gtggatgaag 300
tgtttttcca caggtattat aaaaaagttg ctgttaaaga gaaacaaaaa cgggatgcag 360
atgaagaaag tatagaagac gtggatgatg aagaatttga agagctgatt gacacatttg 420
aagatgataa ctgtttcagc tctggaaagg atgatatgga ttttgctgga aacgtgaaaa 480
agagaacaaa aggagctaag gataacacat tagatgaaga ttcagaaggt agtgatgatg 540
aacttggtaa cctggatgac gatgraagtt tctttaggga agtatggatg atggaagaat 600
ttgctggaag ttgatggaag atgggaggga acattycatg ggatgtgttt agatggatgg 660
aaagtggaga gtgtttccag aacttggaag ttccactccc aaagtccagt accaaggaaa 720
agccnagagn aaaagggtac cagtggattt ttggaccttg gc 762

<210> 39
<211> 1958
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1835)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1885)
<223> n equals a,t,g, or c

<400> 39
tcgagttttt tttttttttt ttctcgtgag cttaggccgc tggttttggt gatttttgtc 60
tgattgcaat gtctggacgt ggtaagcaag gaggcaaagc tcgcgccaaa gcgaaatccc 120
gctcttctcg cgctggtctc cagttcccgg tgggccgagt gcaccgcctg ctccgtaaag 180
gcaactacgc agagcgggtt ggggcaggcg cgccggtgta cctggcggcg gtgttagagt 240
acctgaccgc cgagatcctg gagctggccg gcaacgcggc tcgcgacaac aagaagactc 300
gcatcatccc gcgccacttg cagctggcca tccgcaacga cgaggagctc aacaaactgc 360
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ctaagaagac cgagagtcac cacaaggcca agggcaagtg atttgacagg tatctgagct 480
cccggaaacg ctatcaaacc caaaggctct tttcagagcc cccctaccgt ttcaaaggaa 540
gagctaacct cactgcttgt aggtagaagg aaaaaaggca ctaaggttgc aaaagcttct 600
catttcagag agatgccagg atcctaagtg cctgccaaac ttaccaattc taaggaataa 660
gtggatggat ggcattactg attcctacat tactgattga ttctgcatcc gcaaattgtt 720
ttattaaaaa cattctacat catgtgtggg gagataagga ggataaaatg aagagaaaga 780
atattattga ggggaagttc ttctgaatac aaaatgtgtt taattttta aataagtatt 840
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aacttaccca ggtggtcact tttcttttc ttgtgtatct gcccagtatt cattcctgct 960

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tgactgttac ttttacaaat ctgtgtgtat tggtnggcta agggcctgta tgggtccact 1860
gctgtattcc cagggtccca gcatnggkgc ctggacgctg cckgggcaaa tagtagtcac 1920
ccgaggaaat gggctggatg gaatttcatg gagggcct 1958

<210> 40
<211> 477
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (6)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (17)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (66)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (246)
<223> n equals a,t,g, or c

<400> 40
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cgcganggaa agcggagaag ctcaagtggc cgccatgtca gaggcttatt tccgagtgga 120
gtcgggtgcg ctggggcctg aggagaactt tctttctttg gacgacatcc tgatgtccca 180
cgagaagctg ccggtgcgca cggagaccgc catgcctcgc cttgggcttt cttcctggag 240
cggagnaagg cgccgagact gacaacgcgg tcccacagac ttttatcgga cgttttcgcc 300
gcatcatgga ctcctcacag aatgcttaca acgaagacac ttcagccctg ggtagccagg 360
ctagacgaga tggagagggg cttatttcaa acagggcaga aaggactgaa tgactttcag 420

tgttgggaga aggggcaggc ttctcagatc acagcttcca acctcgttca gaattaa 477

<210> 41
<211> 860
<212> DNA
<213> Homo sapiens

<400> 41
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ttcactaact cccgagagaa ctcccacagg ctcttcctgc tggtgcaagc ttttgggggt 120
gtggacgtgg ctgagttctc ctcgcgctac gggcctggcc agaggaggat gatcctgaag 180
cagtttgaac aggggaagat ccagctgctc atcagcacgg acgccaccgc gcgaggcwtc 240
gacgtgcagg gtgtggagct ggtggtgaac tacgacgccc cccagtacct gagaacctac 300
gtgcaccggg ttgggaggac agctcgcgct gggaaaactg gacaggcctt cacactgctc 360
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ctgtcccagc tggaggagtc tgtcaaggaa gagcrcaagc agagggcggc ctargctggg 540
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gagacttcag ggcttgtcac tttcagagtg tggaggtcag gatggctgcg ggcaatgaag 780
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gagagttggg ggcattaacc 860

<210> 42
<211> 1131
<212> DNA
<213> Homo sapiens

<400> 42
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gaaccttacc ttcaaggagc aagtgaagaa ctctgtgaag gatggaactt tcagatatca 120
actatttaga gtccagaggg agccatggca ctagaaatag ttgataatga aatgagattt 180
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gaaataaatg cattttgtag caaaaaaaaa aaaaaamaaa aaaaaaaaaa a 1131

<210> 43

<211> 1334
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1019)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1204)
<223> n equals a,t,g, or c

<400> 43
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gccccgggtg caatgccgag cctctcggta cccgatcgcc gtggattgct cctggaccct 180
gccgcctgct ccaaactcca ccagccccgt gtccttcatt gccacgtaca ggctcggcat 240
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<210> 44
<211> 2351
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1106)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<222> (2324)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2331)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2350)
<223> n equals a,t,g, or c

<400> 44
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agatcagttt gtttctttct gtgctggtaa caatgagcgt cgcacagaca tggtttcagg 2280
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ccaagcttan g 2351

<210> 45
<211> 1587
<212> DNA
<213> Homo sapiens

<400> 45
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tatttttttg tagagatggg gttgtccagg ctggtctcaa actcctgagc tcaagcaatg 180
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agaggcagtc attttgaaag gttgaaatat ttggccttta ccaaagagct tttttttcc 780
ttaagcaaaa tcctttcaga aagaaacaaa tggggaaggg cagattaaga atgcatatgt 840
cccaatccac ttctatagga gtttaatcat attcacatga gtaaaatgat ggaagaactc 900
tttaaggtaa tcctttggga taaaggatcc tgggaagttc tctcaggtaa agaaagctta 960
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gttttccttt attaaagatt taagcctttt tactttgcaa aaagaaaact acaaaagttt 1080
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tttgaaattt ataatggtct ctgatatgat tcgaattttg gtaacttttg aaagttattt 1260
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gaattgacta ggcttttcct atataaaaaa ctcaaaactt gttaactctg tactttaata 1380
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tttcatggag tctatgctga tcctttaatt gacaaataaa agatatatat ctgtggtgtg 1560
caaaaaaaca aaaaaaaaaa aaaaaaa 1587

<210> 46
<211> 379
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (345)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (351)

<223> n equals a,t,g, or c

<400> 46
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catgagatct gatggctttg taagtgtttg gtagtttttc ctgtattcat tctccctcct 120
gccaccttgt gaagaaggtg ccttggttcc cctttacctt caaccatgac tgtaaatttc 180
ctgaggcccc cccagccatg ggggactgtg agtcaattaa acctctttcc tttataaatt 240
acccagtctc gggcagtttt cttatagcag tatgagaatg gacttaataa aggtaggttt 300
aaaaagtatg gctkgggcat tgtagctcaa cacctgtagg tcaanagcta nctttgggtg 360
ggctgaggca ggagggacg 379

<210> 47
<211> 1920
<212> DNA
<213> Homo sapiens

<400> 47
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gaacaaggag ttaaaagcaa tccatgtgac tcaagccttt cacatactga cagatggtat 180
ctgccagtct cttcaaccct cttctcactt tttaaaatct tgttccatgc ctccaggttt 240
atctttgtct tatctaccag tttattcctg tgaacttcag attgaaccat tcattgcagc 300
agtagcctta aaaaggcttt tgtttatttc tttggtttgt taactagtgt catctattta 360
gagaaacatt tttgttttta attgctcaaa gctgtcgccg ctagtcttat gagctatcta 420
ctaaaactat ggagaaactt tgtatgtgca cacaaaagta ttcaagagac agtattgcta 480
acatctcatc ttaatgtctt ttgttattga gaagttttag gtgcttcaaa acaatataaa 540
tggataatag ttgttatttg gggaattgta atgatgttgg tgctgcttcc ttctaagagc 600
tcagacaagt aaagtatgaa acattcttat ttcagttaga tggggaacat tttgctagcc 660
cattagaagc acacagaatt atccttgtcc tcctaatatt gactttcagg aataaagttc 720
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tccttggtct atttatgtat aagaatgctt tttaaagcac atgtctcatt ttaaatgacg 1860
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<210> 48

<211> 319
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (306)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (317)
<223> n equals a,t,g, or c

<400> 48
ggcacgagcc agaacaaaaa gtacaatagc tgttgctcaa ttgctagtca aataacttag 60
cactggggaa ttccmgatgt tacttaggga atttatact ggtgcatctc aataaagaac 120
tgaaagtaag cacaagaaga aaaaaagcct tatctttgct ctagattttg caaaggggaa 180
atttcaacag aacgcaatca ttgctacacg tctgccaaga cacaaggctt gggcgatctt 240
tttttgttca tttgttttgg atacttagct agtttttcct aaatgtatac cattggaggg 300
ggatanctgg gcctttngg 319

<210> 49
<211> 278
<212> DNA
<213> Homo sapiens

<400> 49
gacggatgaa gagatcgcgg cggtggagcc gttacaaagc gttgaacgcc ggacgtacca 60
gtaagcgtat tcataaaggc ctggtggtgc gtaaaggctg gctgggtaaa ctgccttcat 120
taccgcttcg ctggcgggcg cgtggagtga tgaccctrat gtttatcttg ctggcggcca 180
tgctttggtt tgttgctgcc ccggtggtga cgtatatcct ctgtgcgtta gtggtattgt 240
tggcagcgcc tgttttgaat ggcagattgt acgcccgt 278

<210> 50
<211> 652
<212> DNA
<213> Homo sapiens

<400> 50
ctttctcacc actctcctgc tagccatctc tttggcacta aggccctggt caaattggat 60
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tctttggcat ttatttggtt tttctacgtt ttcagtccca tttactccaa gactcactcc 180
ctgccaccta gtgcatcaga tacagctact tctggctgac ttttcaaggg ggaccaccct 240
acctgtcatc tcttcactgt tcagaaatga ctgtgtcagt ggcacctcaa actcccttgc 300
tgtccttttc caaggagaca gctaaggtgg atggagatgc agaatggacc tcacgttcgc 360
cctagtcagg actgataccc tttccgtttc agaggattgc caagaaaaaa ctcacagttg 420
aggcagggtg ctctgaggtc ggctgcggtg tgggaggcac gsctgggcmt gctctctggg 480
ctggagcagg tggattcgaa ggcctgtcta gcacgagggc ccaaaggtct tgtcagtggc 540
cagtagctct gccgcctttc ccagagaggg ggtccagggg acatcctgga aggctgggcc 600
ctgggccacc ttctgctctt gcaagctaga gccagcccaa tagggggcgg at 652

<210> 51
<211> 943
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (140)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (786)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (843)
<223> n equals a,t,g, or c

<400> 51
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agcccatctt caccacccga gcgcatgtct tccagattga ccccaacacc aagaagaact 120
ggatgcctgc gagcaagcan gcggtcaccg tttcctactt ctatgatgtc acaaggaaca 180
gctatcggat catcagtgtg gacggagcca aggtgatcat aaacagcaca atcacaccga 240
atatgacctt caccaaaacg tcacagaagt ttgggcagtg ggccgacagc agagccaaca 300
cagtgtttgg tttggggttt tcctctgagc agcagctgac aaagtttgca gagaaattcc 360
aggaggtgaa agaagctgcc aagatagcca aagacaagac gcaggagaaa atcgagacct 420
caagtaatca ttcccaagca tccagtgtca acgrgacgga cgatgaaaag gcctctcacg 480
ccggtccagc caacacacac ctgaagtctg agaatgacaa gctgaagatt gccttgacgc 540
agagcgcacc aacgtgaaga agtgggagat cgagctgcag acccttcggg agagcaatgc 600
acggctgacc acagcactgc aggagtcggc agccagtgtg gagcagtgga agaggcagtt 660
ctccatctgc cgtgatgaga atgaccggct ccgcaacaag attgatgagc tgggaagaac 720
aatgcagtga gatcaacaga gagaaggaga agaacacgca gctgraagag gaggatcgag 780
gagctnggag gcagagctcc gagaaaagga gacagagctg gaaagatctt ccggaaaaca 840
aantggaatc mtacytscag ctcctgttca gattgcggat tttgtctctt gagaagctag 900
aggcgggcag agagagacat tcaaaacttg gaagacaaat gcg 943

<210> 52
<211> 832
<212> DNA
<213> Homo sapiens

<400> 52
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ttatccaggt aggctcaatg taatcaggaa gggcctttaa agtgagagag ggasgsagaa 120
gaggaagtca gagcgatgtg ctgtgaaatc tactaccgtt tgctggtttt gaaaatggag 180
aaaaagagtg aggaactgag aaacatggat ggccttggga acgtggaaaa gggtcactga 240
aatgggacga catgaactca aggaggctat ttatgaccat gtcatttgca acatgaagaa 300
agcttatctg gagtgaaagt aaatgagacc aacagagatr agagacccgg agaaatcctg 360

gttacactgc ttgaatcctg tcagtcctat actggagtcc tgttaataca aaataatagt 420
aataatccct ctgtttctta tgtttatgcc aacttcaaca aaaagaaact tgactaagag 480
acaatataag aayttaatgt gtaattaaga aagaactctc caccacgggg aatgtgaaag 540
gtatatgagt cccttttcac gatgcgatgt catgtctttt aaataagcca tactttatgt 600
tcaataaaaa gagaataagc aggattcgcm agagaacaca atcccttttt aactgctggg 660
aagatacytt tagtcattaa tgrctggacg acaatttggg rcacmtatat ggatattggc 720
cggtttgtga tgatgtgatt gggcctctaa gtgacaacat tgttccctgt atagagtgag 780
tggcaagtgc atttataaaa ttggccatca tggctgttaa atttaaaaaa aa 832

<210> 53
<211> 1554
<212> DNA
<213> Homo sapiens

<400> 53
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cctacggacg gawaaggagg agcattgcag gccgagacgc cctcatcagc agagtcacag 120
gagttttggg aagtgaagag aaaagaaaag ttgattacaa acgggaccat attttgcttc 180
gaaatggaac cagcagttag cgagccaatg agagaccaag tcgcacggac tcatttgaca 240
gaggacactc ccaaagtgaa tgctgacata gaaaaggtta accmgaatca ggccmagaga 300
tgcacagtga tcggtggctc tggattcctg gggcagcaca tggtggagca gttgctggca 360
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ttctttctgg gtgacctctg cagccgacag gatctgtacc cagctctgaa aggtgtaaac 480
acagttttcc actgtgcgtc acccccacca tccagtaaca acaaggagct cttttataga 540
gtgaattaca ttggcaccaa gaatgtcatt gaaacttgca aagaggctgg ggttcagaaa 600
ctcattttaa ccagcagtgc cagtgtcatc tttgagggcg tcgatatcaa gaatggaact 660
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gagagggcag ttctgggcgc caacgatcct gagaagaatt tcttaaccac agccatccgc 780
cctcatggca ttttcggccc aagggacccg cagttggtac ccatcctcat cgaggcagcc 840
aggaacggca agatgaagtt cgtgattgga aatgggaaga acttggtgga cttcaccttt 900
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tttggatttc ttgaagcagg cagcttcata ttataccgat ttgttctctg tcaa 1554

<210> 54
<211> 281
<212> DNA
<213> Homo sapiens

<400> 54
agctatttac aggttttaag caaatgatta tgtctgtgtt ttaaaggtat tatattctag 60
atgcttcatg gaattacgtc atttatactt tataaatcta taatgtgtam tgaattaaaa 120
acaagcttgg gaaacataaa ctcaagttag aaaatatggg tttgacataa aaccttaaat 180

atgtttcatt tgtttgcttg tttggcttgt ttgtttctaa cacaagttta acctacatgt 240
gagtcacctt tgggattgat gagtctagrg tttgaaacca g 281

<210> 55
<211> 807
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (770)
<223> n equals a,t,g, or c

<400> 55
gcgtcgaccg gagagctgtg tcaccatgtg ggtcggttgt cttcctcacc ctgtccgtga 60
cgtggattgg tgagaggggc catggttggg gggatgcagg agagggagcc agccctgact 120
gtcaagctga ggctctttyc cccccaaccc agcaccccag cccagacagg gagctgggct 180
cttttctgtc tctcccagcc ccactccaag cccatrcccc cagcccctcc atattgcaac 240
agtcctcact cccacaccag gtccccgctc cctcccactt acsccagarc tttctcccca 300
ttgcccagcc aactccctgc tcccagctgc tttactaaag gggaagttcc tgggcatctc 360
cgtgtttctc tttgtggggc tcaaaacctc caaggacctc tctcaatgcc attggttcct 420
tggaccgtat cactggtcca cctcctgagc ccctcaatcc tatcacagtc tactgacttt 480
tcccattcag ctgtgagtgt ccaaccctat cccagagacc ttgatgcttg gcctcccaat 540
cttgccctag gatacccaga tgccaaccag acacctcctt cttcctagcc aggctatctg 600
gcctgagaca acaaatgggt ccctcagtct ggcaatggga ctctgagaac tcctcattcc 660
ytgactctta gccccagact cttcattcag tggcccacat tttccttagg aaaaacatga 720
gcatccccag ccacaactgc cagctctctg attccccaaa tctgcatccn tcttcaaaac 780
ctaaaaaaaa aagaaaaaaa aagtcga 807

<210> 56
<211> 656
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (545)
<223> n equals a,t,g, or c

<400> 56
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gctgttggtc tgccaagtat tcctgttcat ccaattggat actatgcatg cacagaagct 120
cctagwaaaa atgggtggct cagcaccacc agatagcagc tggagaggaa gtctcaaagt 180
gccctacaat gttggacctg gctttactgg aaacttttct acacaaaaag tcaagatgca 240
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agtggaacca gacagatatg tcattctggg aggtcaccgg gactcatggg tgtytggtgg 360
tattgaccct cagagtggag cagctgttgt tcatgaaatt gtgaggagct ttggaacact 420
gaaaaaggaa gggtggagac ctagaagaac aattttgttt gcaagctggg atgcagaaga 480
atttggtctt cttggttcta ctgagtgggc agaggrgrat tcaagactcc ttcaagagcg 540
tggcntgggc tttatattaa atgctgactc atctatagga aggaaactac actctgagga 600
gttggattgt acaccgcttg atgtacagct tggtacacaa ccttaccaaa gagctg 656

<210> 57
<211> 794
<212> DNA
<213> Homo sapiens

<400> 57
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agaccccgc gcccggcccc gcccgggaga agagcgccgg caagaggggc ccggaccgcg 120
gcagccccga gtaccggcag cggcgcgagc gcaacaacat cgccgtgcgc aagagccgcg 180
acaaggccaa gcggcgcaac caggagatgc agcagaagtt ggtggagctg tcggctgaga 240
acgagaagct gcaccagcgc gtggagcagc tcacgcggga cctggccggc ctccggcagt 300
tcttcaagca gctgcccagc ccgcccttcc tgccggccgc cgggacagca gactgccggt 360
aacgcgcggc cggggcggga gagactcagc aacgacccat acctcagacc cgacggcccg 420
gagcggagcg cgccctgccc tggcgcagcc agagccgccg ggtgcccgct gcagtttctt 480
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gctaaacgtg tttattttcc cttaaattat ttttgtaatg gtagcttttt ctacatctta 600
ctcctgttga tgcagctaag gtacatttgt aaaaagaaaa aaaaccagac ttttcagaca 660
aacccttttgt attgtagata agaggaaaag actgagcatg ctcacttttt tatattaatt 720
tttacagtat ttgtaagaat aaagcagcat ttgaaatcgc aaaaaaaaaa aaaaaaaaaa 780
aaaaaaaaaa aaaa 794

<210> 58
<211> 1155
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (135)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (432)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (443)
<223> n equals a,t,g, or c

<400> 58
aaaaagccag aagatgaaat tgctagttca aagttgttgg attgctagtc atgtcatgag 60
gatcagaagg ttgagatttt tgtagaagct tagaccagtg tgatagtagt gattggatca 120
agacgtttgc aaaanggact aggctcatag taacttcgcc tgataaacaa cttgatgcag 180
atgtttcccc caagcccact atttcttcc ttcrattgct gaaacaaarc tccagaaggc 240
tggaacatac ctttgtcttc ttgagaaatt tttcccwgat rttattaaga tacattggsa 300
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gacacataca tgaaatttag ctggttaacg gtgccagaaa agtcactgga caaagaacac 420
agatgtatcg tncagacatg agnaataata aaaacggrgt tgatcaagaa attatctttc 480

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ctccaataaa gacagatgtc atcacaatgg atcccaaaga caattgttca aaagatgcaa 540
atgatacact actgctgcag ctcacaaaca cctctgcata ttacatgtac ctcctcctgc 600
tcctcaagag tgtggtctat tttgccatca tcacctgctg tctgcttaga agaacggctt 660
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aaaaaaaaaa aaaaa                                                  1155

<210> 59
<211> 492
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (201)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (454)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (467)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (473)
<223> n equals a,t,g, or c

<400> 59
ggcacgagtg caggggtcaa cccttataaa tgcagtcaat gtgagaaatc cttcagtggg 60
aaattacgcc ttcttgtaca ccagagaatg cacacaagag agaaaccata tgaatgcagt 120
gagtgtggaa aagccttcat taggaattct caactcattg tacatcaaag aactcattca 180
ggagagaaac cctatgggtg ncaatgaatg tgggaaaacc ttctctcaaa aatcaattct 240
cagtrcacat cagagaacac atacaggaga gaagccttgt aagtgcactg aatgtgggaa 300
agccttttgt tggaagtcac agctcattat gcatcagaga actcatgtag rtgacaaaca 360
ttgataattt tacgaaactc tgaaaagtgg attcacaaga gatagaaaca atcatatata 420
aagagaaact ctgtaatggg aatcatcttg tccntcttcc agaaaantca tantgaatag 480
aaactttatg ga                                                     492

<210> 60
<211> 1617
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<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1590)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1592)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1595)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1617)
<223> n equals a,t,g, or c

<400> 60
ggaggccctg cgagaggact gtgcggccca ggcacagcgg gcacagcggg cccaacagwt 60
gctgcagctg caggtgttcc agctgcacag gagaagcggc aattgcagga cgacttcgca 120
cagctgctgc aggagcgcga acagctggag cggcgctgcg ccaccttgga gcgggacagc 180
gggagctcgg gccgaggctt gaggagacca agtgggaggt gtgccagaaa tcaggcgaga 240
tctccctgct gaagcagcag ctgaaagagt ctcaggcaga gctggtgcag aagggcagcg 300
agctggtggc tctgcgggtg gcgctgcggg aggcccgtgc tacgctgcgg gtcagtgagg 360
gccgtgcgcg gggtctacag gaggccgccc gagctcggga gctggagctg gaagcctgtt 420
cccaggagct gcagcgacac cgccaggaag ctgagcagct gcgggagaaa gctgggcagt 480
tggatgctga ggcggccgga ctccgggagc cccctgtgcc acctgccacc gctgacccat 540
tcctcctggc agagagtgat gaggccaaag tgcagcgggc agcagccggg gttgggggca 600
gcttgcgggc ccaggtggag cgattgcggg tggagctgca gcgggagcgg cggcggggtg 660
aggagcagcg ggacagcttt gagggggagc ggctggcctg gcaggcagag aaggagcagg 720
tgatccgcta ccagaagcag ctgcagcaca actacatcca gatgtaccgg cgcaaccggc 780
agctagagca ggagctgcag cagctcagcc tggagctgga ggcccgggag ctcgctgacc 840
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gggggacagg gccgggcctg ggctcggttc ccaggtttga gctctgcagc ctctctcctg 1380
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ttgtgaccaa gcagcctctc ccttcaccca ggtttatggc ctcgttttca cttgtatatt 1500
tttcacactg taaatttctt gtacaaaccc aaagaaaaaa ttaaaaaaaa tttttttgtt 1560
taaaaaaaaa aaaaaaaaaa aaaaaaaaan cncgnggggg ggcccggtac ccaattn    1617
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<210> 61
<211> 1653
<212> DNA
<213> Homo sapiens

<400> 61
aaatatgaga attttaaagt aatatattga tyaaagatca ctgatgatat agatataata 60
tatcataaca gaaggaaagt aaatggactt gagcttaact tctcaccctg gaattattag 120
tgggtgaaga ggggaatcat tagcattctg ggcgttttta tattaaatgt tttgtgaata 180
tgccagaaga tctgccttca acttgtaatt aggcaagata gtaaygcttg atggtaactt 240
ctatgtttgt gtagaaataa taccagttag ttttggaaag ccattcagat ccattcaaaa 300
attccataaa gtatgatgta tgctttggaa gagggatatg agtgatacaa ttgttatata 360
aatggaatag acaaaccatt tgaatgcatt tttctagggc aaacattttt tgagattttt 420
gagttaagaa gatttttcgg cttgagcaga agatgtgttt gttttgcatt tttcagctcc 480
aaggaaatag cccccatggc tttaaaaggc cctgaagttc agatagtagt aggtagtgtt 540
ttgttattgt tttaatttga gagttgcagg aataatgggc agagctgtca tttgccggta 600
ckaccatctg cctacataga attattggac tgtaagctaa aacagactgt aaaagaccta 660
cttgctaaag cattgcttat tcagtggtat tcagtagata agatctattt cctgatatat 720
tgtgctcaag ttatttgcac atcttaagaa acttttaata tctaaaacca ttgttgtaag 780
atttaggtag aggaggtttc cttttgtgtg atgcataata atagaaaaca ctgatacagt 840
gtttactatg tgccaagcaa gcatatgata actaattctt aacaactcta tgaggcaggg 900
tcatttatta tcctgttgtc atatgaggaa atctcgccag agagaagtta attaacctgc 960
ccaaggtcgt atagttagta aagtggtcat gcttggattt taacctaggc agattacttc 1020
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aacactaggt gttaggagtg gaggtgtgca gatgttgcct tacattctgt tttcctgatg 1140
tggtgtgctt cctaagagta caaacctgag catatgtcca ggcttgcaaa gtctcaggca 1200
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agcctgttgt tcatctatag atgcactgga tgggattgga agtcttcaga tttcagtagg 1560
gttttccaca agcttatgaa gacattgttc tgtttaggct gtaaactgtt tttatttctt 1620
gatgaaaaat gttcttctat ttatatgatc cca 1653

<210> 62
<211> 440
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (408)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (410)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (431)
<223> n equals a,t,g, or c

<400> 62
gaattcggca gaggaataaa taatttatta tatggtaaag gtggcatttc aaatcaatgg 60
gaaaaggtac gtttattgac aaaggtattg aagcaacggg ttaagatttg gaaaataact 120
atctctgctc ccaaacattc accatatgag actgtagacc taataaaaat aaacataaga 180
ttatgagaat aaaatatcaa taaatatttt atactatctt gcagtgggat aggaattgtc 240
tcactcctgc tggggtgact ccccatgaac cccagggctc ttcagttcca aagrggaaaa 300
aggggaacag atggcctcct ccccttcctc actcccctgg gacccaggat tgctccctga 360
aggttttcga gccaccctcc ttcccattcc tcctgggggg ccaaggangn ttaaacagca 420
gggcccttcc ngtgttgccc 440

<210> 63
<211> 1062
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (948)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (974)
<223> n equals a,t,g, or c

<400> 63
aattcggcac gagggaacct tgaaccagcc rctgaccaaa ttggatagat cttctgaaga 60
gcctttggga gttctggtaa atcccaacat gtaccagtcc cctccccagt gggttgacca 120
cacaggtgca gcctcacaga agaaggcttt ccgttcttca ggatttggac tagagttcaa 180
ctcatttcag caccagttgc gaatccagga tcaagaattt caggaaggct ttgatggtgg 240
ctggtgcctc tctgtacatc agccctgggs ttctctgctt gtcagaggga ttaaaagggt 300
ggagggcaga tcctggtaca ccccccacag aggacgactt tggatagcag ccacagctaa 360
aaaaccctcc cctcaagaag tctcagaact ccaggctaca tatcgtcttc ttcgtgggaa 420
agatgtggaa tttcctaatg actatccgtc agttgtcttc tgggctgtgt ggacctaatt 480
gactgcttgt cccagaagca atttaaggag cagtttccag acatcagtca agaatctgat 540
tctccatttg ttttcatctg caaaaatcct caggaaatgg ttgtgaagtt tcctattaaa 600
ggaaatccaa aaatctggaa attggattcc aagatccatc aaggagcaaa gaaggggtta 660
atgaagcaga ataaagctgt ctgacccagg agaaaaggaa ctatacagca tagtggagtt 720
ttgtgtacta aaattgctat ctactggtcc tttggaattg aagtagtaga aacctaaagg 780
cttggcgtca ggcttgaata tctcagaact taaactctta ccaaaatctg tatatttttc 840
ttaaggagtg ggattcctac tttatgtaat ggggtcgaaa tctttgaaca cattatttat 900
aaaaacctgt ttaaaaggtc gacggtatcg ataagcttgg atatcgantt cggcacgagc 960
ccacctctac ctcngggggg accggcctgg acgctggtgg ccccgggacc cagcagagct 1020
gggggaaggg tcagcccccc aaagaaatgg gggtgcatgc tg 1062

<210> 64

<211> 422
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (252)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (349)
<223> n equals a,t,g, or c

<400> 64
ggcagaggga agaggaaggg aggggagggg agccccttct tcctggtaga tacaaagctg 60
ggctctggat acccttgaag cagtgcacag cctgtacaac agtccccagc agccctgtct 120
atccccccagc atctccctgc tagctgctgt tccctctcct cccgctggct gggcctgctg 180
ccaagctgtg gtgactcagc tgagctggca cattgacccc agcttattgt ttaaaaacca 240
gcccgactgg gnaatttatg gtttcctatc cccttccaca catttttctg gccacaaggc 300
aagaaactta tctctggcat cttcagattt cttstatttw atttgggnc ttcccttgcc 360
tggcaatatg tttcatagag tgggtaagtg agacctgaca ggtgttttca aggataattt 420
ca 422

<210> 65
<211> 709
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (674)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (684)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (692)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (697)
<223> n equals a,t,g, or c

<400> 65
aattcggcag agcgcttctc cattctctgt gggttgtgtt gttttcttca tgaattccga 60

agtttactct tggatgatct agttgaagag ctagtgttta ctgatcacac tgtcttctct 120
ccttgaaatt ggtgcatatt agctgcttct agtcagccct cttgcccaga atccccaaaa 180
agaaaattgt tagttcaggg attgtagctt ttttttgtt ttaacatgag atatgtgatt 240
ataataaact tcaagtattc aggaccattt tatggataaa aggagaatct aacttttaaa 300
agttgggaaa atgatttaat attggaaact caagagttac aaattcttac agttatttca 360
aaactaaagg tttctttaga gctccaaatt tagagctata aatcctatat ccgtaatcaa 420
atccagtact gataacaatg aacaattgct gaagagtaat attctctctc tctttaccaa 480
tgtaagcctt agcattggta ctttcttgwa wtatcttttt gcatgccatt atgatcagaa 540
aaaacaaaaa gctacccaga aagggcagcc acattctaaa tgataggctt ttacctccct 600
gagggggctg ctaggtacct acctggatta ggaattcatt tggtaaacaa caggggggcct 660
tttaaatcta aatnaccatt tccnaataat tngtttnccg tttattccg 709

<210> 66
<211> 1302
<212> DNA
<213> Homo sapiens

<400> 66
gctcgacaag aagagaaaga aggacatgct gaatagcaaa accaaaactc agtatttcca 60
ccaggaaaaa tggatctatg ttcacaaagg aagtactama gagcgccatg gatattgcac 120
cctggggraa gctttcaaca gactggactt ctcaactgcm attctggatt ccagaagatt 180
taactacgtg gtccggctgt tggagctgat agcaaagtca cagctcacat ccctgagtgg 240
catcgcccaa aagaacttca tgaatatttt ggaaaaagtg gtactgaaag tccttgaaga 300
ccagcaaaac attagactaa taagggaact actccagacc ctctacacat ccttatgtac 360
actggtccaa agagtcggca agtctgtgct ggtcgggaac attaacatgt gggtgtatcg 420
gatggagacg attctccact ggcagcagca gctgaacaac attcagatca ccaggcctgc 480
cttcaaaggc ctcaccttca ctgacctgcc tttgtgccta caactgaaca tcatgcagag 540
gctgagcgac gggcgggacc tggtcagcct gggccagctg cccccgacct gcacgtgctc 600
agcgaagacc ggctgctgtg gaagaaactc tgccagtacc acttctccga gcggcagatc 660
cgcaaacgat taattctgtc agacaaaggg cagctggatt ggaagaagat gtatttcaaa 720
cttgtccgat gttacccaag gaaagagcag tatggagata cccttcagct ctgcaaacac 780
tgtcacatcc tttcctggaa gggcactgac catccgtgca ctgccaataa cccagagagc 840
tgctccgttt cactttcacc ccaggacttt atcaacttgt tcaagttctg aatcccagca 900
catgacaaca cttcagaagg gtccccctgc tgactggaga gctgggaata tggcatttgg 960
acacttcatt tgtaaatagt gtacatttta aacattggct cgaaacttca gagataagtc 1020
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ttctcactag aattggtatg gaaaagcaaa atactgtaaa taaacttttt ttctaacaat 1140
ttgccagcaa gactataagg gcaataattc tatttcagcg gtgaaaatgg agtcctctta 1200
atggtcacag aaactctctt atagttccct aggaagaaaa aggcaaaact caaatacaaa 1260
ataggacgct ttgtttacaa tgtgaaaatt tgtttagaaa ag 1302

<210> 67
<211> 1046
<212> DNA
<213> Homo sapiens

<400> 67
aattcggcac gagcttctgt tggtgttatt ttcaattcta tttccagtgc cacaatagag 60
tgatatttaa gcaactccta caggcgaagg ccctgcagtt cctccagatt gacagttgca 120
gactgggcag tgtcaatgag aacctctcag tattgctgat ggccaaaaag tttgaaattc 180
ctgtttgccc ccatgctggt ggagttggcc tctgtgaact ggtgcagcac ctgattatat 240

ttgactacat atcagtttct gcaagccttg aaaatagggt gtgtgagtat gttgaccacc 300
tgcatgagca tttcaagtat cccgtgatga tccagcgggc ttcctacatg cctcccaagg 360
atcccggcta ctcaacagaa atgaaggagg aatctgtaaa gaaacaccag tatccagatg 420
gtgaagtttg gaagaaactc cttcctgctc aagaaaatta agtgctcagc cccaacaact 480
tttttctttc tgaagtgaaa gggcttaaaa tttcttggaa atagttttac aaaaatggat 540
ttaaaaaatc ctaccgatca agatgagttc agctagaagt cataccaccc tcaggaatca 600
gctaagtaat tattacttga ttcttttagc aaatcaatgc acgttatcct acttaatcct 660
taaataagtt tagatttaac taacccaaag tccaggagga tgttcttaca aaaatagcta 720
tatcaagggc tggcacctag acattaaact gtaatttgaa aataagcaac atgttgcata 780
acttgttgga ataattcctt gttctgttta acacttgtca taaattagca gaataaaaat 840
agtcgtgcaa caccgggggt atctggtatg caacgaaggg raaaatattt cactgattaa 900
ccccgaagtg gttttgcatc ttttccttgc ttaatctaag catattatta gagaagtcac 960
accatgctga agctaatgag ggcaaaatgg tagtccatag attattttaa aataaccctt 1020
taaggttata aaagtttaaa aaaaaa 1046

<210> 68
<211> 501
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (45)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (311)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (404)
<223> n equals a,t,g, or c

<400> 68
caagagaaga aattatgaaa gggcgtgaat accaagaggc aggtnattgg gggccatctc 60
agaggctgcc caacacaggc tactctttgg cccccgatga ttcatgttcc ttccaaatgc 120
aaaatgcccc gtcccaagat ctccaaaagt cttatcccat tataggatta gctcagagtt 180
cagaacctta tcatctaaag ttccaggtgt aggtaaggct tttgggtgta gttattttat 240
tacagctcct agcacacttc tagtgttata ctaatgcctc ttctgtatag ttcacttgga 300
aataaatgat ntaggtactt tgatccatat ggagttctgt gtaggaagat caacctagat 360
ctgatgttag ctggtaaaca ctgtagtgtt aaaaaggcac tgtnttatga tagctctttt 420
tgacagtgac tgggattatg gggcaaatgg taaatggcat gcaattgaga tcagtattag 480
gttattaatt gaactggaat c 501

<210> 69
<211> 581
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (149)
<223> n equals a,t,g, or c

<400> 69
aattcggcac gagggaaaga aggccatgta ggggcttgct ttagtcatcc actgctaact 60
cattaactat taattcaagc aatatgtatt atagaaccgt tttgtgtagc attggaatat 120
tgtccatttt gtaagtcatt gtgaatgtnc ttaattatca gcttgaaggt attttgtat 180
taaaagttga cattgaagaa cctaagtgga tgatgggatt tggggccagt agtgaaagta 240
tgtttcctct aaaatatttc cctaaacagt ggtatacatg gttattttat tatgagattt 300
gtatatgtyc tgtgtttctc tgtgaacaat gtttcagtct ctctgtcacc atatgtaagg 360
ggaagtccac aaatatagac tacattgcac aaaactaaaa ttgttaatta caagaaaata 420
taggtgctta ccttttgaag gtttattaat acatatggtt gtcacaatac gtatatatga 480
taaatggtgt acatatacag atgtttatgg tgtataaatt tttctatacc caaaaaaaaa 540
aaaaaaaaaa aaaaaaaaaa aaaaaagggg gggccccccc a 581

<210> 70
<211> 1076
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (911)
<223> n equals a,t,g, or c

<400> 70
tccaaacaga gggagcagct atttaagggg agcaggagtg cagaacaaac ragacggcct 60
ggggatacaa ctctggagtc ctctgagaga gccaccaagg aggagcaggg gagcgacggc 120
cggggcagaa gttgagacca cccagcagag gagctaggcc agtccatctg catttgtcac 180
ccaagaactc ttaccatgaa gaccctccta ctgttggcag tgatcatgat ctttggccta 240
ctgcaggccc atgggaattt ggtgaatttc cacagaatga tcaagttgac gacaggaaag 300
gaagccgcac tcagttatgg cttctacggc tgccactgtg gcgtgggtgg cagaggatcc 360
cccaaggatg caacggatcg ctgctgtgtc actcatgact gttgctacaa acgtctggag 420
aaacgtggat gtggcaccaa atttctgagc tacaagttta gcaactcggg gagcagaatc 480
acctgtgcaa aacaggactc ctgcagaagt caactgtgtg agtgtgataa ggctgctgcc 540
acctgttttg ctagaaacaa gacgacctac aataaaaagt accagtacta ttccaataaa 600
cactgcagag ggagcacccc tcgttgctga gtcccctctt ccctggaaac cttccaccca 660
gtgctgaatt tccctctctc ataccctccc tccctaccct aaccaagttc cttggccatg 720
cagaaagcat ccctcaccca tcctagaggc caggcaggag cccttctata cccacccaga 780
atgagacatc cagcagattt ccagccttct actgctctcc tccacctcaa ctccgtgctt 840
aaccaaagaa gctgtactcc ggggggtctc ttctgaataa agcaattagc aaatcawrwa 900
aaaaaaaaaa naaaaaagaa aaaaagtttt ggcctaaatg agtcgtatta cagttgacgc 960
ggccggcgaa tttagtagat ggtgtaattc gacccgagaa attccggaac cggaactctg 1020
aggggtgaca agtttcccca agagcggcgg attaaggctt gggcggacaa agggcg 1076

<210> 71
<211> 376
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (347)
<223> n equals a,t,g, or c

<400> 71
gcccacgcgt ccgaggaggg ccgcstttcc ggtctgggtc ccsgagagga ctgccttgct 60
cacctgtccc ctcggcgcgg ccccggggag ctcccgagag gccccmggga tcgctggccc 120
tccgaactcc acagcaatga gcaagttggg caagttcttt aaagggggcg gctcttctaa 180
gagccgagcc gctcccagtc cccaggaggc cctggtccga cttcgggaga ctgaggagat 240
gctgggcaag aaacaagagt acctggaaaa tcgaatccag agagaaatcg ccctggccaa 300
gaagcamggc acgcagarta agcgagggat cwgmacwaaa tagatgnttt gatgcaagag 360
atcacagagc aacagg 376

<210> 72
<211> 374
<212> DNA
<213> Homo sapiens

<400> 72
aattcgacsa gccagggcac cctgcccatg tatcccamgc agagggagca gaaccagcgg 60
tgtaactact gtgcttgaca cccagggcag gtcttttttt aactcaccga tcttccatgc 120
aacaaaattg ttttctgtga aaagcaggaa atgaataaca acagcgtagg tactccactt 180
caaatttccc aagaaattca gaagaattgt gaacaagttg ctggtttcac aatactgcaa 240
gacactgcaa gttattccaa gttcctacag gacaacgatg cacaattatt tacttactta 300
tgtttaaata tacctatcag tttgactttc atcctttggt gacattctaa taatttatgt 360
aaataattat tcag 374

<210> 73
<211> 419
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (221)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (411)
<223> n equals a,t,g, or c

<400> 73
aattcggcag agctgcattg tcttttaggg ccaatggact tggaggcata gagattttat 60
aactactgcc agaacccaaa tattgccagt sggcctcttc tgctgctgtt gctagctgtc 120
ttcttctggg ggaaatgggt tgggttctaa atatgaatta acacagggct gtcttcgatg 180
aattcagcac aaaatgttct cagcaattga acactcggag ngaagtgtta ggcatttagt 240
gcagactcat agaatagcag gacagggagg gatttggatc tgggcaagca ggagatggrt 300
atgaacatct gtcttttgag acctgccgag gtggcaatga aggtagaggc cctgtgttg 360

aggtctttat tcaagaggct gtggtccctt tgggacttaa catagcatcc nttagacag 419

<210> 74
<211> 286
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (134)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (154)
<223> n equals a,t,g, or c

<400> 74
gcaggcgact tgcgagctgg gagcacttta aaacgctttg gattcccccg gcctgggtgg 60
ggagagcgag ctgggtgccc cctagattcc ccgcccccgc acctcatgag ccgaccctcg 120
gctccatgga gccnggcaat tatgccacct tggnatggag ccaaggatat cgaaggcttg 180
ctgggagcgg gagggggcg gaatctggtc gcccactccc ctctgaccag ccacccagcg 240
gcgcctacgc tgatgcctgc tgtcaactat gccccttgg atctgc 286

<210> 75
<211> 633
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (89)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (531)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (570)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (618)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<222> (623)
<223> n equals a,t,g, or c

<400> 75
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ggctttcgcg aatcccgagg caatctcgna ggcggtattt gacctgtcca aagacgactt 120
gatacctcta taatgtaaca gaaaaggtca gaaaatatta agcaagtaga agtgtggagc 180
atattaagca agatgaacat ctcgggaagc agctgtggaa gccctaactc tgcagataca 240
tctagtgact ttaaggacct ttggacaaaa ctaaaagaat gtcatgatag agaagtacaa 300
ggtttacaag taaaagtaac caagctaaaa caggaacgaa tcttagatgc acaaagacta 360
gaagaattct tcaccaaaaa tcaacagctg agggaacagc agaaagtcct tcatgaaacc 420
attaaagttt tagaagatcg gttaagagca ggcttatgtg atcgctgtgc agtaactgaa 480
gaacatatgc ggaaaaaaca gcaagagttt gaaaatattc cggcagcaga ntcttaaact 540
tattaccgaa cttatgaatg gaaaggatan tctaccggga ggaattaaaa gctttctgga 600
caactccgcc ggaattgnga tgntcaccgc ttc 633

<210> 76
<211> 256
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (48)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (134)
<223> n equals a,t,g, or c

<400> 76
agcacaagtt caggaccagc ctgcgcaaca tagcaagatc cccatctnta caaaaaaaat 60
aaacaattag ccagggcata gtggcatatg cccattgtcc catctactct ggaggctgag 120
gcgggaggtt cgangttcac agaaccccca taacccatcc agctagccag gtagaaggcc 180
tccaggtccg acgttgcatt ccccagggtc tgatgctgtc tgcaatcttc atccctaggc 240
agwagagcta aaaatg 256

<210> 77
<211> 694
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (668)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (673)

<223> n equals a,t,g, or c

<400> 77
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ggatcgaagt aaagctctcg gtcaagttca acagcaggga gttcagcttg aagaggatgc 180
cgtcccgaaa acagacaggg gtcttcggag tcaagattgc tgtggtcacc aagagagaga 240
ggtccaaggt gccctacatc gtgcgccagt gcgtggagga gatcgagcgc cgaggcatgg 300
aggaggtggg catctaccgc gtgtccggtg tggccacgga catccaggca ctgaaggcag 360
ycttcgacgt caataacaag gacgtgtcgg tgatgatgag cgagatggac gtgaacgcca 420
tcgcaggcac gctgaagctg tacttccgtg agctgcccga gcccctcttc actgacgagt 480
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tgctcaacct gctgctgtcc cttgccggag caaaccttgc ttcamctttc cttttccttt 600
ttggraccam ctgaaaaagg gttggcagag aagggaggca gttcattaag ttccttgcaa 660
aaaacttngc canggttttt ttggccccaa ggtt 694

<210> 78
<211> 2562
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (75)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2556)
<223> n equals a,t,g, or c

<400> 78
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cttgacgatg acgangatgt aaaagtgtgt gctggggatg atgtgcagac gggagggcca 120
ggagcagaag aaatgcgtat aaacagctcc accgagaaca gtgatgaagg acttaaagtg 180
agagatggaa aaggaatacc gtttactgca acacttgcgt catctagtgt gaactctgca 240
gaggagcacg tagccagcac taatgagggg agagagccca cagactcagt tccaaaagaa 300
caaatgtcac ttgttcacgt ggggactgaa gcctttccga taagtgatga gtctatgatt 360
aaggacagaa aagatcggct gcctctggag agtgcagtgg ttagacatag tgacgcacct 420
gggctcccga atggaaggga actgacaccg gcatctycaa cttgtacaaa ttctgtgtca 480
aagaatgaaa cacatgctga agtgcttgag cagcagaacg aactttgccc atatgagagt 540
aaattcgatt cttctcttct ttcaagtgat gatgaaacaa aatgtaaacc gaattctgct 600
tctgaagtca ttggccctgt cagtttgcaa gaaacaagta gcatagtaag tgtcccttca 660
gaggcagtag ataatgtgga aaatgtggtg tcatttaatg ctaaagagca tgagaatttt 720
ctggaaacca tccaagaaca gcagaccact gaatctgcag gccaggattt aatttccatt 780
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gcatcctgga cctgactgat cagacttccg gaaccatcac tgatgacagt gatatctggc 1320
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attagttatg acagccattt gtaatgaatt tgtcgcaaag acgtaataaa attaactggt 2520
rgcacggtaa aaaaaaaaaa aaaaaaaaaa aaaaanaaac aa 2562

<210> 79
<211> 1610
<212> DNA
<213> Homo sapiens

<400> 79
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aaactggaaa aaatcatttg taagtcttgc taattacttt tcttggagaa gaaaaaaaat 120
gctacagttg caaacaaatg tatagttttc aaaaagaagc aactttttttg ctccccagtt 180
tattcttagt ttccagccca cgccttgcga tagsratagg catagtgatg gcctcaattc 240
tttctctctt gcatccgtac cttttgctgt gtgactttgc agctcctctc attaaagagg 300
cagagccccc tctcccaccc ataggagcag gttttgagag taacagaatg aagtgaaaat 360
gacactgtgc cagttctaag accagccctc aaaggttcat gtgtttctgc ttgctttcac 420
tgtatttgaa atgttgctgt gagaaagaca tctctgaaac agctgaatgg tcctaagaaa 480
aggatgagag atgcagggag cagagctccc aactgaggcc agcctagatc acctaagagc 540
caggccccca gtttactctc atgtgtaagc aataaatgct taccccagca ataccaccaa 600
ggtttgtggt tggtttatat acagcattaa tgtggcaata ggtgcaatac accctgttaa 660
acaaaccata cacatatgac tctaacccta atcataaatt gattcagtct gttcagttcc 720
acaacgctgt ttcctccaga atctcacaga tgacttacta aatccaacac aaatacacct 780
cagactttct gtctagctcc caaccagtta aaagcaattc taaatatttt ttttcttagt 840
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actttttgga tgatttctgk tggtgggttt tggatacctt caaggatca gaaaataata 1440
tacttaggaa attttggtaa tgtcatcatt actctctaca ttattattat gacggttaca 1500
attgttaaat ctaggtggtg ggtatgtggg ttatattgta catgattttt aacttgtctg 1560
catgtttgaa attataataa agtcaataaa taaattattg agacactctt 1610

<210> 80
<211> 1048
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (131)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (997)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1021)
<223> n equals a,t,g, or c

<400> 80
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aatgctaatg naggctggca ggacgcaaca actccatctt ctgtgacttc tcctacagaa 180
ggcccaggaa gtgtgcactc ggatacctct aactaatctc tggccacact tttccctgag 240
ctacatgcct tgataagtgc attcagagca ataggaggaa aaggaaagcg tttttgtagc 300
ccaccatcta cagctttact gtaaaacctt gtcttattcg agaacttggt aaatctgttt 360
tttaaggaat cataatcatt tgtatttata cttaaaaaca cacaatgtta aaaaaaataa 420
agcactttat ccaattaggc caagatttaa cattgttgac agtcctgtag ctattttatc 480
ataatttatt atcaatattt tacattaatg gtttcacagt tgccaattac ttggccttaa 540
gggtaaaaag tacaatatac actaaacctc aaccgttaaa gcagatgcaa aaattcacct 600
cacctaaatt gaacttcttg catatttcca ttactgactt ggattgtctt tctttcatat 660
cactaatgga gttggaataa agagctgttt gcctatccct gttaatgatg gttgtgttta 720
agaatcttcc tcgtcacgtt tgtgttcaga tctcttatgt tataattaga tcagagactg 780
gtagcatcgt ttctctctct gaaagcacca gtgcccagag tctgctcggt aataaaatta 840
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tgatccgtct ggggttttac ggtgtgcact gggtgctgca cagacttgtc aaggtttgcy 960
acgtccyckg ggcactgcma aaggcccgcc cccgggntgt tgtaaaaatg tagccaaaga 1020
ntatttaaac atcccaccaa ccaaacac 1048

<210> 81
<211> 1136
<212> DNA

<213> Homo sapiens

<220>
<221> misc feature
<222> (1124)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1131)
<223> n equals a,t,g, or c

<400> 81
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ggacagattg actttttga ccctacattt gactatgaga tgatcttccg gggaacagga 120
gcactgatat ttgtcattga ctcacaggat gattacatgg aagccctggc caggctccac 180
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aaagtggatg gtctgtcaga tgaccacaaa attgaaaccc aaagagatat tcaccagagg 300
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caactcccaa ctctggagaa tttgctgaac atctttatct caaattctgg aattgaaaag 480
gcatttctat ttgatgtggt cagtaaaatt tatattgcaa ctgatagtac tccggtggat 540
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tatggtctca aagaagatgg agcaggaacc ccctatgaca aggaatccac agccatcata 660
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ccatgttgca ctaaaggaag aggaagaagg agattgggac acataccatt gatttgttgt 1020
taaaaaaaaa aaattcctgc aaccctcttg atcttctctt ttataaataa agtaagcact 1080
ttgaagcaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaangggggg nccccc 1136

<210> 82
<211> 297
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (28)
<223> n equals a,t,g, or c

<400> 82
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gggagagacc caccgaccct gtggggctgg tccctacatc tggcgctctg acgtggggct 120
ctccctcgct gtgtgaagtt gcaccctgag tgcgggatca gcggaggagt tcaacgagag 180
attcctgagg attgcagtct ataaacttgg tgcaggcggc tgaccccgca gctyaacaag 240
atcaagaggc tgataatcaa gcccctcagc ccgaaactca ggctgctcag ggaaaag 297

<210> 83

<211> 2150
<212> DNA
<213> Homo sapiens

<400> 83
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gggttcggcg gttgctgtra gagcgggctt cccaacacca tgccgtccgc cttctctgtc 120
agctctttcc ccgtcagcat cccagccgtg ctcacgcaga cggactggac tgagccctgg 180
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cattgtggtt atgtgggtat ggaagacttt gaatgtgatg actgacctga agaatgcaca 480
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<210> 84
<211> 601
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (66)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (505)
<223> n equals a,t,g, or c

<400> 84
ttgtgtgcca ggggtggtcc ccagaaggag ctgatctgaa caggccggag agtaggaccg 60
gccgtnacac ccccacacct ccagcctcgg ccccactcct tgggctctta aggtcctgcc 120
tcaagaacca cttcctgagt cttagtgtat gtgtgtacaa aagaatgaaa gaagtctcta 180
gagctaaagg aaggagatyc gggctgggct gagaagcatc ttccaggatc acggscttcc 240
cgcgggacac accaagccca ttccggatct tgctcttcct gaccatggyt ggcaggytgt 300
ggaggaggas cggagagcag aagaaaggag tattcatcag gttccttatt gtgctgccac 360
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ccctytgyta gcaggcagaa ccgagttytg gccacamtgt gaaggaaagg cagaagcctg 480
cgktggcary tggtttaagc tcagngggca gggaaaggga agaggagaat ggttttcacg 540
gagcagaagg ttgtgctcaa ggtggacctt ggagaataaa ggggagagct ccagggaaca 600
g 601

<210> 85
<211> 534
<212> DNA
<213> Homo sapiens

<400> 85
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ggctagaccg aagtgtacta gccaaggagt tgaagtttgt gactttggtg tttcggcatg 180
gagaccgaag tcccattgac acctttccca ctgaccccat aaaggaatcc tcatggccac 240
aaggatttgg ccaactcacc cagctgggca tggagcagca ttatgaactt ggagagtata 300
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gaagcacaga cgttgaccgg actttgatga gtgctatgac aaacctggca gccctgtttc 420
ccccagaagg tgtcagcatc tggaatccta tcctactctg gcagcccatc ccggtgcaca 480
cagttcctct ttctgaagat cagttgctat acctgacctt tcaggaactg ccct 534

<210> 86
<211> 1037
<212> DNA
<213> Homo sapiens

<400> 86
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cagcttggta cacaacctaa caaaagagct gaaaagccct gatgaaggct ttgaaggcaa 120
atctctttat gaaagttgga ctaaaaaaag tccttcccca gagttcagtg gcatgcccag 180
gataagcaaa ttgggatctg gaaatgattt tgaggtgttc ttccaacgac ttggaattgc 240
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tgtatcacag tgtctatgaa acatatgagt tggtggaaaa gttttatgat ccaatgttta 360
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tagtgctccc ttttgattgt cgagattatg ctgtagtttt aagaaagtat gctgacaaaa 480
tctacagtat ttctatgaaa catccacagg aaatgaagac atacagtgta tcatttgatt 540
cacttttttc tgcagtaaag aattttacag aaattgcttc caagttcagt gagagactcc 600

aggactttga caaaagcaac ccaatagtat taagaatgat gaatgatcaa ctcatgtttc 660
tggaaagagc atttattgat ccattagggt taccagacag gcctttttat aggcatgtca 720
tctatgctcc aagcagccac aacaagtatg caggggagtc attcccagga atttatgatg 780
ctctgtttga tattgaaagc aaagtggacc cttccaaggc ctggggagaa gtgaagagac 840
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aagaggattc tttagagaat ccgtattgaa tttgtgtggt atgtcactca gaaagaatcg 960
taatgggtat attgataaat tttaaaattg gtatatttga aataaagttg aatattatat 1020
atagttaaaa aaaaaaa 1037

<210> 87
<211> 597
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (29)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (582)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (586)
<223> n equals a,t,g, or c

<400> 87
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gctatttcat acctaatgag ggagttccag gagattcaac caggaaatgc atggatctca 180
aaggaaacaa acacccaata aactcggagt ggcagactga caactgtgag acatgcactt 240
gctacgaaac agaaatttca tgttgcaccc ttgtttctac acctgtgggt tatgacaaag 300
acaactgcca aagaatcttc aagaaggagg actgcaagta tatcgtggtg gagaagaagg 360
acccaaaaaa gacctgttct gtcagtgaat ggataatcta atgtgcttct agtaggcaca 420
gggctcccag gccaggcctc attctcctct ggcctctaat agtcaatgat tgtgtagcca 480
tgcctatcag taaaaagatt tttgagcaaa maaaaaaaaa aaaaaaaaaa aaaaaaaaaa 540
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa angggnggcc gctctag 597

<210> 88
<211> 474
<212> DNA
<213> Homo sapiens

<400> 88
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ggtgwgtcac agcaaccctc agccaccagc tgttttccat ctgccggcct tcctggggga 180
gagtcccttc cagctgtagc ccctgtctat gggaaaagtc tcatgtcctt ttcatctctc 240

cccactgcac actgtctctc accctagact ataattcaag tgaatttgac ctccatttat 300
tggacaagcc aggsactgtg ctaggrataa tgwaaaccat tagacaaatc tgaaagggag 360
ggatcactag actaaggggt agaaatgtgg agatgggagt aactttctgc atgtctttgc 420
aggaggtggc atgtgagaaa gctttttgga agaggtggca cctggagctg tgga 474

<210> 89
<211> 1537
<212> DNA
<213> Homo sapiens

<400> 89
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acgacccttt atattgtgag agtgttcaca atttcacttt accctcctgg gccactgagg 180
acaccatgac taagttgaga gaattgtcag aattgtccct cctgtccctc tatggaattc 240
acaagcagaa agagaaatct aggctccaag gggtgtcct ggtcaatgaa atcctcaatc 300
acatgaagag agcaactcag ataccaagct acaaaaaact tatcatgtat tctgcgcatg 360
acactactgt gagtggccta cagatggcgc tagatgttta caacggactc cttcctccct 420
atgcttcttg ccacttgacg gaattgtact ttgagaaggg ggagtacttt gtggagatgt 480
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agatgttgac tctaaagttg atttaaggcc aggcatg 1537

<210> 90
<211> 304
<212> DNA
<213> Homo sapiens

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<221> misc feature
<222> (33)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (292)

<223> n equals a,t,g, or c

<400> 90
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tgttgcccgg gctggtatgg aactcctgtg cttaagcggt cctcatgcct cggcttccca 120
aagtgctgag gttgcagcta tgagccaccg cacccagcct acattccttc ttatcaccga 180
gaaacaggtt gatcttcaca ggtgtaatga gtatgaaggg agtgccataa agatattttt 240
tattttttat ttatttattt tttaatttaa tttttttttt tttgggatgg gngtcttgct 300
ctgg 304

<210> 91
<211> 369
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (46)
<223> n equals a,t,g, or c

<400> 91
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tccttccacc tcattctccc caagaactgg gattacaggc atgagcaact gcacctggtc 120
catatgcttc ttatagttga agaagtgaag ggtcaatgac tttactaaaa tactattaaa 180
gtaataaagc taggacttag ccccaattat tcatccttaa agtccaatac tttcaatata 240
ttaagttgct ctttattata tgaattctaa atatcttttt taccttttgt tatctaatct 300
ggaaatccta tataaatgta taattttata catgctgact gatatccyct ctagtcttgc 360
tatactagg 369

<210> 92
<211> 315
<212> DNA
<213> Homo sapiens

<400> 92
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atagcaagga ttctggcatc agttggagat tctttggatg gatgtgctcc catggagttt 180
ctattttaat gtactaacaa cttatgactc gtctatctgt agtatcaatt atatccacta 240
tcacagtaac agtcaccact taatatgyat agratatctc attttaccaa gcaattatgg 300
tatctctgat ttata 315

<210> 93
<211> 701
<212> DNA
<213> Homo sapiens

<400> 93
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taatacgcta tttctccaac atcaagacaa ctaaaacaaa tgataaaaat gtttattttt 180

acactccagc atatcgggtg agtttaggg atgtgtatga atatttaaat cttttaattt 240
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gattgtttga gttaatggtt gaatttttaa agtttttagt tacttaaaat akgattttaa 420
attrcatatt aatttagaaa attcctgtgt ttacttatat tttaaattgt gaaatggatc 480
caatcattag aacagagaga atagttcttt gaaactgaaa tactttagtt ttactgacct 540
tgtgtaaaga taatatgaag aaccagcttc caaaagaaac cagcatatgg cactataaac 600
tatttcattt gagcaccatt ctttaccatg gatatattaa ttatgtatta tagtggagtg 660
atcatacagk tccccaaat gtgatggttc aagggaattt a 701

<210> 94
<211> 459
<212> DNA
<213> Homo sapiens

<400> 94
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gaagaagagc caagagacca ttatgaaaac tctagtaagt tctcttggtg attatataat 360
gctgtawtca ttgatcatat tkctgtattt aaataagtac attttttaaa acatcataaa 420
gtggatcagt aatgctgtaa tatcacattt catgtatta 459

<210> 95
<211> 2589
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1056)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2568)
<223> n equals a,t,g, or c

<400> 95
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gaagaagcga gtcagtggcc cgttcaacct gctctgcagc tgctataaat agcctccctg 180
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tggcactggg ctagagaggc accttcctgc gtgaatcctg tgcggcaggt cttattgcca 420
taataagtca catcaaagac actgctggtc ataaaacact gtttacata ccatagggaa 480
aaacgctgcc aatcttaact aagatgctac aactgtacag ttccttccaa tcagagatgt 540
tcacgtgtga aaaaaaaact gtgctactta caatctatga aagctggtrt tatcccactt 600

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gtgttgtgtg ttttgatttt tgtcttttta tctgttttat attgacataa ttttcctgtt 2520
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<210> 96
<211> 457
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (372)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (384)
<223> n equals a,t,g, or c

<220>

<221> misc feature
<222> (442)
<223> n equals a,t,g, or c

<400> 96
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ggggctgttg gwgactctgc ctacagcacg gggcrtgtgt ccaggctgar cccgctgagc 180
gtcgacacag tcgctgttgg cctggtgtcc agcgtggttg tctatcccgt ctacctggcc 240
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catcgtggga ctgactttgg tggaagtcct tggttactta tcattaactg tgtttctgag 360
aagttataaa tntggcatct cctnctgcac aacttacctt tgggttataa taatctggtg 420
accatcgtca cgttggactg antttggggg aagcctt 457

<210> 97
<211> 516
<212> DNA
<213> Homo sapiens

<400> 97
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attgtgggca tgagctgctg tgcccagcct ccatgtttta atatcaactc tcactcctga 180
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atactccagg acttagaata gtgcctaaag tgctgcagcc aaagacagag cggaactatg 480
amaagctctc ctgccatctc caagcccact tttcag 516

<210> 98
<211> 314
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (263)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (271)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (299)
<223> n equals a,t,g, or c

<400> 98

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ccggtgcatg tcgatcttgg cccccagggc tgtgatgcag ccagccaggt ctcagggaga 180
gggaacccag aagcctggca tgctggccaa aggagtcaag gaaacttttg agctatttac 240
agcttgtagc aattatgtaa agnatactcc nctgaacaaa atttggagca tgtttgttnc 300
tctctacctg attt 314

<210> 99
<211> 679
<212> DNA
<213> Homo sapiens

<400> 99
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ggtcgattaa agtgcggtac tgcgggattc arccgatttc cttcttcctc tgactgcccg 180
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<210> 100
<211> 599
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (583)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (584)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (599)
<223> n equals a,t,g, or c

<400> 100
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cgacactaca tcaacctcat caccaggcag agatatggaa aacgatcyag cccagagaca 300
ctgatttcag acctcttgat gagagaaagc acagaaaatg ttcccagaac tcggcttgaa 360
gaccctgcaa tgtggtgatg ggaaatgaga cttgctctct ggccttttcc tattttcagc 420
ccatatttca tcgtgtaaaa cgagaatcca cccatcctac caatgcatgc agccactgtg 480
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catgcattca aaaaaaaaaa aaaaawaaaa aaaaaaaaaa acnngggggg gggccccgn 599

<210> 101
<211> 1189
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (232)
<223> n equals a,t,g, or c

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ccaacacagc aacaaattca tgctggtcct ggccagcaat ctgcctgagc agttcgactg 180
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<210> 102
<211> 251
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (42)
<223> n equals a,t,g, or c

<400> 102
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aaggttcctg cactaaaaca tccggaaatc ctgccaacag tgcaaggaag ctggttcagc 180
aggtggccct aaggttkgag gttstaaatc catttcaatc tgttatgctg gtccatggcc 240
ttgatattgg c                                                      251

<210> 103
<211> 458
<212> DNA
<213> Homo sapiens

<400> 103
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acccccagag ccaaccctgg ggcccactag gaccccaaac acctgtgttt tcattctgcg 180
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aaaagttcta tgatragact tcaagacact aggattta                         458

<210> 104
<211> 439
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (360)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (402)
<223> n equals a,t,g, or c

<400> 104
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tccactttcg gagctccagc gtcaratcgc tcagccggag atgagatgca ccatccggct 180
gctggacgac tcggagatct cctgccacat ccagagggaa accaaagggc agtttctcat 240
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aaactcatcc accatacacc atgtgcttta gagtgaattt anccacatga acccttgaag 420
attaaagaag actcacaag                                              439

<210> 105
<211> 233
<212> DNA
<213> Homo sapiens

<400> 105
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ctcagaatta tcaacttttt atcattttat catatttgct tcagatcttt ttttttttta 180
aagaaaagta taacagattt agctaaagta ccctttgacc aataccccac ccc 233

<210> 106
<211> 704
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (704)
<223> n equals a,t,g, or c

<400> 106
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ggtccycggg aggctagaga tcatggaagg gaagtggttg ctgtgtatgt tactggtgct 180
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<210> 107
<211> 445
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (426)
<223> n equals a,t,g, or c

<400> 107
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tgcagcgccc cagtggcttt gaaatgcaac agaaaccatc acccccggac catgggctcc 180
atgccagtgg gcaaagcaca ggtgcgttca ctgagttccc agcacatagc tgtggcaggc 240
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ctaccttact cagggacatg gtgccctcct ctctggttyc ctgccctgtg ccamcccccg 360
scccctgcaa gcacagytct tatgtgcaaa gcccctgtaa gtgctggagg gattactgat 420
ggcttngggg aagtggcaat gggat 445

<210> 108
<211> 592

<212> DNA
<213> Homo sapiens

<400> 108
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tctttccctt cctctgaggc cagccatccc catcccagga ggcaggggaa gcaagcccgg 180
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ccaaaccact agagaacctg aaaattcacc aggaaattgg gcaactgcaa gttatcctgg 480
agactccaga gtcaacactt cattaaatga gaacaatctg gttcatgcgt tgaagctgtt 540
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<210> 109
<211> 381
<212> DNA
<213> Homo sapiens

<400> 109
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aaaatagtag tctctgggga gctaaagtct aaaatacaaa ggtgtgaggc agaccttata 180
tactacttaa cttgtatact atttatagcc cagtattctg ttttctagac ctgtccaggt 240
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acagtctgat ttaattgggc a 381

<210> 110
<211> 351
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (253)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (322)
<223> n equals a,t,g, or c

<400> 110
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aaccttatga aaatggacag tatttccagt tttacaagtg aggaaagaag attaagaaac 240
ttgcctccgc cangcgtggt ggttcactcc ctgtaatccc agcactttcg gcggccgaag 300
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<210> 111
<211> 1583
<212> DNA
<213> Homo sapiens

<400> 111
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gcctaccgat gttcaccgtg ctcaggaaat tcaccattcc acttacctta cttctggaaa 420
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aaaaaaaaaa aaaaaaactc tga 1583

<210> 112
<211> 431
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (388)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (408)
<223> n equals a,t,g, or c

<220>

<221> misc feature
<222> (422)
<223> n equals a,t,g, or c

<400> 112
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ttcgttatta aacatacggc tcaagtgatc accggtatag acagtgacat cagacatctt 180
tcattagccc tactcaaaaa tggcggcaac gtaatatcct gggccggagt cggttgtaac 240
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gatgccactt ggcggcccat ggcagctgtt agtatcggcg actccgggtm aaggcccgkt 360
csagttgcat taccatgggg cagcaccngg ttttaggggc agggacantt ttgttgttca 420
anttgttgct g 431

<210> 113
<211> 2842
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (2040)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2603)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2656)
<223> n equals a,t,g, or c

<400> 113
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tctgttttca tttttttcac gt 2842

<210> 114
<211> 268
<212> DNA
<213> Homo sapiens

<400> 114
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cttttatgag ccaaggtgtt cccgaaagtg garccagcgc cacgcgtctc yaaggtctcc 180
atacccagcc ttcgtccctg cggtgcccaa aagccttgcg cgcattttgc atttgggaaa 240
aaaagtcctg aatgcgaacg tcacccca 268

<210> 115
<211> 800
<212> DNA
<213> Homo sapiens

<220>

<221> misc feature
<222> (673)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (794)
<223> n equals a,t,g, or c

<400> 115
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cgaggcgctg ctcagccgct tccaggagac ggacagtgta cgcttcgagg acttcacgga 180
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agacagagca tttcacttta cagcaatgcc caaattgctg tcatatagga tgaagaaaaa 540
aattcaccga gctgaagtta cagaagaatt taaggaccca agtgatcgtg tgatgaaact 600
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catgtaattc agntgataaa gtccaagcca gataaggcct taacttgata aaggatgatt 720
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<210> 116
<211> 646
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (556)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (592)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (615)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (645)
<223> n equals a,t,g, or c

<400> 116

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ctcccatatt cttctnggaa aagcagatgc tttgctaatc ccaaggaatt gnatttttc 600
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<210> 117
<211> 1534
<212> DNA
<213> Homo sapiens

<400> 117

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cgagctgccc gagctgctta aactttatta ccggaggctc tttccctact ctcagtacta 180
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<210> 118
<211> 339
<212> DNA
<213> Homo sapiens

<220>

<221> misc feature
<222> (155)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (307)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (333)
<223> n equals a,t,g, or c

<400> 118
tagatgaaga taatgaaaaa gaaaaaaggg actctttagg caatgaagaa tctgttgata 60
aaacagcatg tgaatgtgta aggagtccaa gggagtcttt ggatgacctg tttcaaatat 120
gttctccatg cgccattgca agtggtcttc ggaanacctg gctgaattga caacattatg 180
tttggagttg aatgtattga attctaagat caaaagcacc agtggracat gtgggaccac 240
actttgccaa cagtaactct cctgaaattc tgggcttgcc atttccctga aagaagtact 300
tttttcntcc ggaacttgga aaagagcgaa ggnagagta 339

<210> 119
<211> 665
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (616)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (656)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (665)
<223> n equals a,t,g, or c

<400> 119
aaagagtgtc cctagttgta acagaaactg tcgatgcagg tttatttgga gaaggaattg 60
tggagagttt gattcatgca tgggagcatt tacttttaca gccaaagacc aaaggtgaaa 120
gtgctaattg tgaaaagtat gggaaagtta taccagcaag tgctgttata tttgggatgg 180
cagtagaatg tgcagagata agaagacatc atagagtggg tattaaggac attgctggta 240
tccatttgcc aacaaatgtg aaatttcaga gtccggctta ttcttctgta gatactgaag 300
aaacaattga accttataca actgaaaaga tgagtcgagt tcctggmggr tatttggctt 360
tgacagagtg ctttgaaatt atgasagtag atttcaacaa ycttcaggaa ttaaaaagtc 420
ttgcaactaa raarcctggt aaaattggta ttcctgttat taaagaaggc atattagatg 480

ctgttgtggt ttggtttgta ctccagcttg atgatgaaca tagtttatcc acaagtccta 540
atgaggaaac atgttgggaa caagctgtct accctgtaca tgaccttgca gactaccgga 600
taaaacgtgg ggaccngtga tgatggaatg tcttgtccaa gattgttact taagantcca 660
gaatn 665

<210> 120
<211> 622
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (544)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (577)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (603)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (614)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (620)
<223> n equals a,t,g, or c

<400> 120
gagggctgcg ggaggcggga ggaaaaagtg gggccgggcc tgagttgggc tgacctgtga 60
aagtctggga aggtctgcga gagaagcgga gtgttttcag ctccggaagt ggcagttgta 120
aacttcacct cccgggggct cttccccttc tgtacccctt tgctgtttgt ccccctcctc 180
ccgggtcctg gagtccgtcg tgttccaaca gtttttgctc ttattcccgt gggctgctgg 240
gcctcctttc acccgtgaga cttggarcgg ccctggggtc ttgggtgtca agcacggatc 300
acgcgagacc cctgagacct caaatcatct aacgtgaagc cacagacatc ttggcaattt 360
taatcatcaa gaaagaaata tgtcattaag aaatagcagg gtattttgaa agaagttgga 420
aaacatcatg aatttgaata ctttaagtaa tactggtgat acccaaaggt tgaagattgc 480
ctcattggat gtaaaacaaa tacttaaaaa tgaaacagag ttggatatta ctggataatc 540
tcangaagaa actccattgg gctaaaaaag aaaagtntga aataccacca accccatgga 600
aancttgcaa gctntgaagn ca 622

<210> 121
<211> 889
<212> DNA

<213> Homo sapiens

<220>
<221> misc feature
<222> (817)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (830)
<223> n equals a,t,g, or c

<400> 121
ggctgaagcc atccccttgg ctgatcagcc acatctgttg cagccaaatg ctagaaagga 60
ggatcttttt ggccgtccaa gtcagggtct ttattcttca tctgccagta gtgggaaatg 120
tttaatggag gttacagtgg atagaaactg cctagaggtt cttccaacaa aaatgtctta 180
tgctgccaat ctgaaaaatg taatgaacat gcaaaaccgg caaaaaaaag aaggggaaga 240
acagcccgtg ctgccagaag aaactgagag ttcaaaacca gggccatctg ctcatgatct 300
tgctgcacaa ttaaaaagta gcttactagc agaaatagga cttactgaaa gtgaagggcc 360
acctctcaca tctttcaggc cacagtgtag ctttatggga atggttattt cccatgatat 420
gctgctagga cgttggcgcc tttctttaga actgttcggc agggtattca tggaagatgt 480
tggagcagaa cctggatcaa tcctaactga attgggtggt tttgaggtaa aagaatcaaa 540
attccgcaga gaaatggaaa aactgagaaa ccagcagtca agagatttgt cactagaggt 600
tgatcgggat cgagatcttc tcattcagca gactatgagg cagcttaaca atcactttgg 660
tcgaagatgt gctactacac caatggctgt acacagagta aaagtcacat ttaaggatga 720
gccaggarar ggcagtggtg tagcacgaag tttttataca gccattgcmc aagcattttt 780
atcaaatgaa aaattgccma atctagagtg tatcccnaaa aaaaaatttn ggcccccca 840
aaaacccaaa aaaaaggggc caaccccaa ccaccaaagg gttttttaa 889

<210> 122
<211> 132
<212> DNA
<213> Homo sapiens

<400> 122
cttgagcccc tgagttgtgg gggtagggtg aagagcatat cccacaagag gccccacagg 60
gagcagagac tgctttaatc cctgctgaca tcacggaaaa gcaacagagc cttttcaact 120
ttgtcactat gt 132

<210> 123
<211> 1900
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (9)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<222> (1879)
<223> n equals a,t,g, or c

<400> 123
gcggacgcnt gggaaacagc cgattggaga cgggagccaa ccagggctgc attggaggtt 60
gaaatcacaa agattagaca cctttttaga taggtgttct tcagcaccac tgacaacacg 120
gttctgacag tatttcatga caatggatgg tgacagttct acaacagatg cttctcaact 180
aggaatctct gcagactata ttggaggaag tcattatgtt atacagcctc atgatgatac 240
tgaggacagc atgaatgatc atgaagacac aaatggttca aaagaaagtt tcagagaaca 300
agatatatat cttccaatag caaacgtggc taggataatg aaaaatgcca tacctcaaac 360
gggaaagatt gcaaaagatg ccaaagaatg tgttcaagaa tgtgtaagtg agttcatcag 420
ttttataaca tctgaagcaa gtgaaaggtg ccatcaagag aaacggaaaa caatcaatgg 480
agaagatatt ctctttgcta tgtctacttt aggctttgac agttatgtgg aacctctgaa 540
attataccttt cagaaattca gagaggctat gaaaggagaa aagggaattg gtggagcagt 600
cacagctaca gatggactaa gtgaagagct tacagaggag gcatttacta accagttacc 660
agctggctta ataaccacag acggtcaaca acaaaatgtt atggtttaca caacatcata 720
tcaacagatt tctggtgttc agcaaattca gttttcatga tctgaagaaa tgatggaatg 780
gggagtgtag agaaatgaga gtctgtatga ttctggaaca gagacatcag aaggaaagac 840
tggtgaaaag atgtatcttt gtatattaat agctgtaatg tagcttcctg atgcttgact 900
aattgaggtg ttaattctga cttgagaatc tttttcatga atgattttaa agaaaaattt 960
ggattttaaa ggtattaaaa tatttttgtt ttgtacgaga gtttgttgct ctgtatgact 1020
cctgtatgca ttgtatattg caatttatta ctgtcagaga tttgtagaca gtttcttatt 1080
ttcatattga atcatgttac ttttgtaatt caagtaagcg gctgggttaa ttcatgatgt 1140
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aaatttgagt ttgtcttggt tataccttgc atgataacct agctagattt ctagcatttg 1260
ctgtatttat taaaattatt atttttttgg taaaacatta atagtttaag cagcatcatt 1320
tttttaaaaa atgtaattga ataagtgtga atgcagaagc aaatattgtc tgccctgtta 1380
aacttggtgc ccattaacag tgtttacact gttcatcgtg cctgttaatg tagttttagt 1440
taytggagct tttttaagac tagatttggt tttgagttac atttttaaga atgtgggaat 1500
atatttaagt ttaatgtagt cctagtgctc ttgaaatggt gccccttca tttggtacat 1560
gatttttttt caaatcatat cttcaagtac tatagtattc tcttacagaa gaggagtttt 1620
atagtctgat ggtaaatgtc ttcattttac ctttttaatt gaaatgtcaa gtttcctgtt 1680
acactatgga aaccaagaaa catcagacat cattgcgtgt acagaccttt tgcatgggtg 1740
agtggatgaa atggagaaca gagtgagtgc tgtgaacggt gtgaaataga agccaacttc 1800
tagtatgctg tcttcatctc tgcaataaac taaacgtaaa taawrwaaaa aaaaaaaaaa 1860
aaaaaaaaaa aaaaaaaana aaaaaaaaaa aaaaaaaaaa 1900

<210> 124
<211> 1250
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (874)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1169)
<223> n equals a,t,g, or c

<400> 124
ggcacgagga ggaaactaac gattccctgc ccaccccac acccagcacc accaacaggt 60
gggcaagctt gccgagaaaa cgcagagggc atcctgtgag cagcaaacac atctgagcct 120
ggaaaagacg cagagaagta aaagatcaaa gtctgattgg caccggctcc cattccggct 180
ccagcctcca atccgacccc catttcggct gcagcctcgg acctagctcc ggccctcggt 240
ctatccggtt gcatcctccc tccctgttcc ggatcttatc ttgcgccagc gcctactcca 300
ggatcccgta gccagacctc aagccatggc tggtcccttc tcccgtctgc tgtccgcccg 360
cccgggactc aggctcctgg ctttggccgg agcggggtct ctagccgctg ggtttctgct 420
ccgaccggaa cctgtacgag ctgccagtga acgacggagg ctgtatcccc cgagcgctga 480
gtacccagac ctccgaaagc acaacaactg catggccagt cacctgaccc cagcagtcta 540
tgcacggctc tgcgacaaga ccacacccac tggttggacg ctagatcagt gtatccagac 600
tggcgtggac aaccctggcc accccttcat caagactgtg ggcatggtgg ctggagatga 660
ggagacctat gaggtatttg ctgacctgtt tgaccctgtg atccaagagc gacacaatgg 720
atatgacccc cggacaatga agcacaccac ggatctagat gccagtaaaa tccgttctgg 780
ctactttgat gagaggtatg tattgtcctc tagagtcaga actggccgaa gcatccgagg 840
actcagtctg cctccagctt gcactcgagc agancgacga gaggtggaac gtgttgtggt 900
ggatgcactg agtggcctga agggtgacct ggctggacgt tactataggc tcagtgagat 960
gacagaggct gaacagcagc agcttattga tgaccacttt ctgtttgata agcctgtgtc 1020
cccgttgctg actgcagcag gaatggctcg agactggcca gatgctcgtg gaatttggca 1080
caacaatgag aagagcttcc tgatctgggt gaatgaggag gatcatacac gggtgatctc 1140
catggagaag ggtggtaaca tgaagagant gtttgaaaga tctgccgagg cctcaaagag 1200
gtrgagagac tatgtagggg actaggtggg aggacataag gaaaaccaaa 1250

<210> 125
<211> 1189
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1041)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1136)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1144)
<223> n equals a,t,g, or c

<400> 125
ctttttttaa ccctttaggt atctgatcgc tttgccaatt ttgcgttact gggcaggcta 60
agagatcttc ttttaattca gcctgcttaa gacgggaact gataactgta gtgtatcctc 120
tgcctttttt cttatctatt ggaggaagct cagatggtgt cacaagaagg atctgaagtg 180
gagcttctag tatccccagg agcgcgaagt gaacacggaa ggtacctgca ggatccaatt 240
gtgtccattg atctctcaga gtggctgagg ataatagagt ttcttcttca aggtctcaag 300
gtctgaagca tcccacagaa tgatcctact gaataactcc cataagctgc tggccctata 360

caaatccttg gccaggagca tccctgagtc cctgaaggtg tatggctctg tgtatcacat 420
caatcacggg aacccccttca acatggaggt gctggtggat tcctggcctg aatatcagat 480
ggttattatc cggcctcaaa agcaggagat gactgatgac atggattcat acacaaacgt 540
atatcgtatg ttctccaaag agcctcaaaa atcagaagaa gttttgaaaa attgtgagat 600
cgtaaactgg aaacagagac tccaaatcca aggtcttcaa gaaagtttag gtgaggggat 660
aagagtggct acattttcaa agtcagtgaa agtagagcat tcgagagcac tcctcttggt 720
tacggaagat attctgaagc tcaatgcctc cagtaaaagc aagcttggaa gctgggctga 780
gacaggccac ccagatgatg aatttgaaag tgaaactccc aactttaagt atgcccagct 840
ggatgtctct tattctgggc tggtaaatga caactggaag cgagggaaga atgagaggag 900
cctgcattac atcaagcgct gcatagaaga cctgccagca gcctgtatgc tcggcccaga 960
ggagatcccg gtctcatggg taaccatggg acccttcttg tgaagtagga atggcctaca 1020
gcatggaaaa ataccgaaga ncaggcaaca tgggcacgag tgatggtgcg atacatggaa 1080
atatctgcgt cagaaggaat atttccattt ttacatctct gtgttgggaa ggaaantgaa 1140
gganteccccg cagatttgtg gggggcagtt ttggtttctt ttgaggcct 1189

<210> 126
<211> 428
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (388)
<223> n equals a,t,g, or c

<400> 126
gaggtcctga gagactgtra gagccccaac tccattagta ttatgggcct caatacttcc 60
cgggttgcaa ttaccctgaa gccccaagac cctatggaac agaacgtagc tgagctgttg 120
cagttcctgc tggtgaagga tcagagcaag taccctatcc gggagtctga aatgcgggaa 180
tatattgtta aagaatatcg caaccagttt cctgagatac tcaggcgagc agcagcccac 240
ctggagtgca tttttaggtt tgaattgaga gaacttgacc ctgaggcaca cacctacatt 300
ctgttaaaca aactgggacc tgtgcccttt gaagggttag aagagagccc aaatgggcca 360
aagatgggcc tcctgatgat gattctangc caaatattcc tgaatggcaa ccaagccaag 420
gaggctga 428

<210> 127
<211> 645
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (255)
<223> n equals a,t,g, or c

<400> 127
acgcggtcgg ccgggagccg gggaggagcg tggacgccgg cctggcaggt acccccgcga 60
gaacgtggga gccggtgtat ttcagctgca tttattactg atctcgggct gcaccagggc 120
acttgtagga ccgcactaaa aacagcggaa agtgaggagc caagcctggg tccggggcgg 180
cccgccgtac agctggcctc acggattcca ctgcctgcgc ctgcagatga cttgttctgg 240
agagtagaga atgtnctcgg atttaaagta caatccggtt tcctttccat tcattatagt 300

tgcctacact caacaaacaa aagttgggaa agataaaggg attattctag cgcgtcacat 360
tgacaaacac cgacgttaac acgctcagtc cagcctgact cacttgcctc aggtcagaga 420
ggtcaccact gacgacgccg ggccctcaag ccgatcctaa tccagcttgg ttctctcagc 480
ctcagccaga ccatccgttc ttgcctctgt cccaccacgt gcaggtgtaa gyttccgccg 540
cacttcttgt ctgaatctgc caaggaagga aactggcatc tttcagctta aattcttttt 600
cacttgatca ggggtaggag tttaggcggt ttttttttt aagga 645

<210> 128
<211> 496
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (475)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (481)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (490)
<223> n equals a,t,g, or c

<400> 128
ctggagtctc aacgacgcgc acacgagaag taaggagcgg aaggtgggaa agggccggaa 60
aacacacgtt cctccgaaac cggtttgcaa gtccttgtag agagtgatag attcgtgtgg 120
cctttcaaat gattgtgaag tggtggaaat ggatccaaaa taataagtga cttctctacc 180
aaagcataga agattcttca tatctccttc cagtggctca atttagattt tgggaargag 240
cagaacaagt gaaacacaga aaactgaaga gaagaaatcc tcattttgga cctatatttc 300
tccttgacta tttcttaata tccatcctac ccatcgttct aatgttttaa ctttgctctg 360
aatttataaa tagtaaaggc caaagacata gaatatacat ttagtagctt tataccaaga 420
aatttgcctt gaaagctgct gtscgtggag gggaaagtgt agcaaattcc tggcnatttg 480
naattttaan ttattg 496

<210> 129
<211> 424
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (313)
<223> n equals a,t,g, or c

<400> 129
ctggcggccg caggagcgcg tgcggcgtgg actttgccgg gctcgccaca cagccccaga 60
cccgtttagg accgggagac cgaacgcagc gwccagccgg ggagtttcgg cggcgttctc 120

cgggcaccgc gcgcggaagc cagacgcagc ggggggacac atctcgcggt ggcgttgcca 180
gagtgaggag ttagcaggca ggacttgacg aggctctttg gtttttctag tcctcaacca 240
ctgaagaaga agcttgatgc ttggctgtca gaagacatga attacgcacg gttcatcacg 300
gcagcgagcg cancagaaac ccttctccca tccggaccat gactgacata ttgagcagag 360
gaccaaaatc gatgatctcc ttggctggtg gcttaccaaa tccaaacatg tttcctttta 420
agac 424

<210> 130
<211> 1709
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (881)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1028)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1061)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1168)
<223> n equals a,t,g, or c

<400> 130
tggaccgcag cttcctggaa gacacaaccc ccgccaggga cgagaagaag gtgggggcca 60
aggctgccca gcaggacagc sacagtsatg gggaggccct gggcggcaas ccgatggtgg 120
carggttcca ggacgatgtg gacctcgaag accagccacg tgggagtccc ccgctgcctg 180
caggccccgt ccccagtcaa gacatcactc tttcgagtga ggaggaagca gaagtggcag 240
ctcccacaaa aggccctgcc ccagctcccc agcagtgctc agagccagag accaagtggt 300
cctccatacc agcttcgaag ccacggaggg ggacagctcc cacgaggacc gcagcacccc 360
cctggccagg cggtgtctct gttcgcacag gtccggagaa gcgcagcagc accaggcccc 420
ctgctgagat ggagccgggg aagggtgagc aggcctcctc gtcggagagt gaccccgagg 480
gacccattgc tgcacaaatg ctgtccttcg tcatggatga ccccgacttt gagagcgagg 540
gatcagacac acagcgcagg gcggatgact ttcccgtgcg agatgacccc tccgatgtga 600
ctgacgagga tgagggccct gccgagccgc ccccaccccc caagctccct ctccccgcct 660
tcagactgaa gaatgactcg gacctcttcg ggctggggct ggaggaggcc ggacccaagg 720
agagcagtga ggaaggtaag gagggcaaaa ccccctctaa ggagaagaag aagaagaaga 780
aaaaaggcaa agaggaagaa gaaaaagctg ccaagaagaa gagcaaacac aagaagagca 840
aggacaagga ggagggcaag gaggagcggc gacggcggca ncagcggccc ccgcgcagca 900
gggagaggac ggctgccgat gagctggagg ctttcctggg gggcggggcc cgggcggccg 960
ccaccctggg ggtggcgact acgaggagct ctaggccggc gtgggcagtg gccgccctgg 1020
ggcggggngc gtgcctgtca ctgcctgggg aggcatttgc ntctgtacca tcgcctttgc 1080

cgctgccccg tggctgccgt gtgcgcttct gagctggaag aggccgggca ttggtggtcc 1140
ccaggctggg ccctgcaggt gctgggcntt cagccyagtg tgagcctgct ctgcaagaag 1200
ggaggggaca gctggcttca gccaggctcg gtggacaccc tggccctctc ggggcagagc 1260
cgccagtgtt tctcagggat gtgactgagg cccaggaggg acctgtgagg gtctgtttac 1320
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tccgcgctca tctggggccg cagcatgcct atggttccgc ttccggccgg gagccctgaa 1440
cacgggtgtg cagactcacc ctaaagggcg gcccaggccc cacgctagaa ggctggcgag 1500
accgaagcag catgtgaggc ctctcctggg agtgggggtt gtgtttccca cagtggcctc 1560
agctgcgccc ccgctcaggt gagcccgaag gcaggagccg ggaggcactc ctcccaaaca 1620
ctccactcag accataaagc actcctgttt cactctgaaa aaaaaaaaaa aaaaaaaaaa 1680
aaaaagggcg ccgctcgcga tctagaacc 1709

<210> 131
<211> 866
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (683)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (723)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (740)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (793)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (813)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (841)
<223> n equals a,t,g, or c

<400> 131
ctcgctcgga ttggttcagt gcactctaga aacactgctg tggtggagaa actggacccc 60
aggtctggag cgaattccag cctgcagggc tgataagcga ggcattagtg agattgagag 120
agactttacc ccgccgtggt ggttggaggg cgcgcagtag agcagcagca caggcgcggg 180

tcccgggagg ccggctctgc tcgcgccgag atgtggaatc tccttcacga aaccgactcg 240
gctgtggcca ccgcgcgccg cccgcgctgg ctgtgcgctg gggcgctggt gctggcgggt 300
ggcttctttc tcctcggctt cctcttcggg tggtttataa aatcctccaa tgaagctact 360
aacattactc caaagcataa tatgaaagca tttttggatg aattgaaagc tgagaacatc 420
aagaagttct tatataattt tacacagata ccacatttag caggaacaga acaaaacttt 480
cagcttgcaa agcaaattca atcccagtgg aaagaatttg gcctggattc tgttgagcta 540
gcacattatg atgtcctgtt gtcctaccca aataagactc atcccaacta catctcaata 600
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<211> 1593
<212> DNA
<213> Homo sapiens

<400> 132
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<211> 408
<212> DNA
<213> Homo sapiens

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<222> (381)
<223> n equals a,t,g, or c

<400> 133
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<210> 134
<211> 2741
<212> DNA
<213> Homo sapiens

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<222> (1673)
<223> n equals a,t,g, or c

<220>
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<222> (2736)
<223> n equals a,t,g, or c

<400> 134
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<210> 135
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<212> DNA
<213> Homo sapiens

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<221> misc feature
<222> (638)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (655)
<223> n equals a,t,g, or c

<400> 135
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gaattacaga gaaaacacac ctgcacgcgc actctctcgt acacgctgtg cggcttctgt 120
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tatttgctcg acccgcaggc gtatccgctg ccgggttctg gcgcgccctt tcagttctgc 240
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tggagaacta catcaaccgt atcctcaagc tggcgccgcg ggcgtgagcc ggggtcgcgg 360
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ggcgacaaca gtttgcaatc tttgta 686

<210> 136
<211> 242
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (229)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (242)
<223> n equals a,t,g, or c

<400> 136
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gtgaaattag accaggggtc agaacataga ttttagtctc ctttagttca tctactagga 120
gactaaatta gataatctct aaactccctt ttagttctaa aattctgtaa ttaaactcta 180
gcatatcatc attttagact aaaagttttc ttcttcttct tcttttttnt tttggttttt 240
tn 242

<210> 137
<211> 545
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (445)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (527)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (534)
<223> n equals a,t,g, or c

<400> 137
caggaagagc ccaactgggt atcagaataa gccacatgca ccttctgaaa ctgcccaaat 60
ccacacctgc ataagaattt gagcccagtt cataaagcag atcatgaagc aattatcttc 120
ctggaagggt ttttagcttg ctctccagtt gcctcagcag ctttggctct gtgccacagt 180

gagcccaagg ggaaggtgat ggaacagcat cacatctgca ggctcagtgt tttgtttggt 240
gagggtaagg ggagggaatg tagacggatg aagaaatttc tccctactgc ttccattttg 300
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tgccc 545

<210> 138
<211> 396
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (334)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (373)
<223> n equals a,t,g, or c

<400> 138
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gtgccttgcc ttncaacccg tccgctctgt cctctt 396

<210> 139
<211> 2771
<212> DNA
<213> Homo sapiens

<400> 139
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<211> 422
<212> DNA
<213> Homo sapiens

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<221> misc feature
<222> (329)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (392)
<223> n equals a,t,g, or c

<220>

<221> misc feature
<222> (422)
<223> n equals a,t,g, or c

<400> 140
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cn 422

<210> 141
<211> 1630
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1566)
<223> n equals a,t,g, or c

<400> 141
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<211> 264
<212> DNA
<213> Homo sapiens

<400> 142
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tgaagacaat cctggaagag cttgttcaga ggggtcatga ggtgactgtg gtwracatcy 180
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acatctttga actaaaaatt attt 264

<210> 143
<211> 636
<212> DNA
<213> Homo sapiens

<220>
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<222> (2)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (9)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (260)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (323)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (480)
<223> n equals a,t,g, or c

<400> 143
antccaccng gtggaggccg ctctagaact agtggatccc ccgggctgca ggtgcgggca 60
attcgtctgg cgctggaagg ggttgatgtc aaactggaac aggccgcaag aacactgggg 120
gccgggcgct ggcgcgtttt ctttactatc acgttaccgc tgaccttacc gggaattatt 180
gttggtacgg tactggcttt tgctcgttct ctcggtgagt ttggtgcaca tcacctttgt 240
gtcgaacatt cctggtgaan gcggaaccat tccttctgcc atgtataccc tgatccagac 300

ccccggcggg aaaagtggag cgncgagact gtgccattat ttctattgcg ctggcgatga 360
tctccctgtt gatttcagaa tggctggcca gaatcagccg tgaacgggcg gggcgctaat 420
catgctggaa ctgaattttt cccagacgtt gggcaaccat tgcctgacta ttaatgaaan 480
taccgtactt caatccataa agttgcgtta agccgcacgg ttcaaaacgg ctgggcacca 540
gaatgacgtc cgcgccgccc ataatgcgat gcgaawatgc tcgtgatagc caatctgaac 600
gcccacctga ccggggtatt tccgtgccgc cgcaag 636

<210> 144
<211> 500
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (476)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (489)
<223> n equals a,t,g, or c

<400> 144
ccgccctcgg cgtcctctgt agcgggcgac ctaggccgcg ggacccggac ggaggtagag 60
gccagggcag cgcgtccggg agcggagtcc gcgcccgccg ccgccatgcc ggacagctgg 120
gacaaggatg tgtaccctga gcccccgcgc cgcacgccgg tgcagcccaa tcccatcgtc 180
tacatgatga aagcgttcga cctcatcgtg gaccgacccg tgaccctcgt gagagaattt 240
atagagcggc agcacgcaaa gaacaggtat tactactacc accggcagta ccgccgcgtg 300
ccagacatca ctgagtgcaa ggaggaggac atcatgtgca tcaaaktcga ccaagaaatt 360
atcacattat gcaggatcgg ytcaaagcyt ktcagcagag ggaaggacag actaccagca 420
gactgtatca aggaaktgga gcagttaccc aggtggccaa ggctaccagg gaccgntatc 480
aggacctgng ggcctacatg 500

<210> 145
<211> 1945
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1934)
<223> n equals a,t,g, or c

<400> 145
ggcacgaggc tgctgctttc ctctctgtta aagagaatgt tcaaggccga ggacacataa 60
aaaagagcag cattgctggc tctgttattt agctgtgtgt tcttgaaaaa gtcacttctc 120
cagacatatc tcagcattta taacctaaga ctgaatcact gcattttacc cttaatgagg 180
tacgcttaca ctaatctttt tgaaacagta cttaaattgt agcaggacaa gccgcagaca 240
aaacccctca gccagcgagt ttaagaaaga agggctttat tcggccggga tcttcggcaa 300
gactcacgtc tccaacaacc aagctcccca agtttccggt tctgtcacct ccaggctgag 360
ccgggctggc ggaagaggca cgtgcgctgc tgaatggagc tggtcgctgg ttgctacgag 420

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caggtcctct ttgggttcgc tgtacacccg gagcccgagg cttgcggcga ccacgagcaa 480
tggactcttg tggctgactt cactcaccat gctcacactg cctccttgtc agcagtagct 540
gtaaatagtc gttttgtggt cactgggagc aaagatgaaa caattcacat ttatgacatg 600
aaaaagaaga ttgagcatgg ggctctagtg catcacagtg gtacaataac ttgcctgaaa 660
ttctatggca acaggcattt aatcagtgga gcggaagatg gactcatctg tatctgggat 720
gcaaagaaat gggaatgcct gaartcaatt aaagctcaca aaggacaggt gaccttcctt 780
tctattcacc catctggcaa gttggccctg tcggttggta cagataaaac tttaagaacg 840
tggaatcttg tagaaggaag atcagcattc ataaaaaata taaaacaaaa tgctcacata 900
gtagaatggt ccccaagagg agagcagtat gtagttatca tacagaataa aatagacatc 960
tatcagcttg acactgcatc cattagtggc accatcacaa atgaaaagag aatttcctct 1020
gttaaatttc tttcagagtc tgtccttgca gtggctggag atgaagaagt tataaggttt 1080
tttgactgtg attcactagt gtgcctctgc gaatttaaag ctcatgaaaa cagggtaaag 1140
gacatgttca gttttgaaat tccagagcat catgttattg tttcagcatc gagtgatggt 1200
ttcatcaaaa tgtggaagct taagcaggat aagaaagttc cccatctttt actctgtgaa 1260
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ggcaaaaagg agcctggtga cacagtgcac aaagaagaaa agcggtcaaa acctaacaca 1440
aagaaacgcg gtttaacagg tgacagtaag aaagcaacaa aagaaagtgg cctgatatca 1500
accaagaaga ggaaaatggt agaaatgttg gaaaagaaga ggaaaaagar gaaaataaaa 1560
acaatgcagt gaatcacaga tgtctcctga aagaactctt ttagatgaaa tcattctact 1620
caaatgtacc ttaatttttt ttttttccct gagtaaaagc aagaaatttc ttcctttgga 1680
aaaaatatat atattaaaaa accactttta gatggttttt tttaaaaaaa aaaaaaaact 1740
ggtaaaatta cttttggcag acagtgtttt atgaattatg tatcatgttg atatataata 1800
tgttaatgtg tcatgtaatt tttactttgt acaaagcaaa taaagatctt tctcaaaata 1860
tactgtaaaa taatataaaa tattgaacac attctttatc aaaaaaaaaa aaaaaaaaaa 1920
ttactgcggt ccgncaaggg aattc                                       1945
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<210> 146
<211> 1114
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1006)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1034)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1055)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1084)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1108)
<223> n equals a,t,g, or c

<400> 146
agagtgcgct gcgtttcgat gagccgggac gtggcgccrc tctagccagc gcctgggctc 60
tgtggcgggc gccgcagctc cgcgtccccc gcgcctcctc ccagcgcaga cttcaagggc 120
taccactgga cccttcccct gtcttgaacc ctgagccggc accatgcacg gacgcctgaa 180
ggtgaagacg tcagaagagc aggcggaggc caaaaggcta gagcgagagc agaagctgaa 240
gctataccag tcagccaccc aggccgtatt ccagaagcgc caggctggtg agctggatga 300
gtccgtgctg gaactgacaa gccagattct gggagccaac cctgattttg ccaccctctg 360
gaactgccga cgagaggtgc tccagcagct ggagactcag aagtctcctg aagagttggc 420
tgctctggtg aaggcagaac tgggcttcct ggagagctgc ctgcgggtga accccaagtc 480
ttatggtacc tggcaccacc gatgctggct gctaggcsgc ctgcctgagc ccaactggac 540
ccgagagctg gagctctgtg cccgtttcct ggaggtggat gagcggaact ttcactgctg 600
ggactatcgg cggtttgtgg ccacacaggc agccgtgccc cctgcagaag arctagcctt 660
cactgacagc ctcatcaccc gaaacttctc caactactct tcctggcatt accgctcctg 720
tctcttgccc cagctgcacc cccagccgga ttctggacca caggggcgcc tccctgagga 780
tgtgctgctc aaagagctgg agctggtgca gaatgcttct tcactgaccc caatgaccag 840
agtgcctggt tttatcaccg ttggctccta ggccgagctg acccccagga tgcactgcgc 900
tgcctgcatg tgagccggga csaggcctgt ctgactgtct ccttctctcg gscсctctta 960
rtgggctyca ggatkgagat cttgctgctc atgggtgatg aatctncccc tgattgtgga 1020
atggaggacc ccanatggca ggaacccggg ccaanctgtc tggtattcca agatggtggg 1080
gcanaaattg ggctggggca aggctggntg gaaa 1114

<210> 147
<211> 546
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (433)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (486)
<223> n equals a,t,g, or c

<400> 147
ctcgggctga gtagtggcgt ggccgtgagg tccctgcgcc tgcgccctgg atggtcctgg 60
tgccgctccc gccttcgcag ccagcgcggg cttacctagt gttaagtctc tcttcttggg 120
tggcccacgc ctaagcgacc tatgcttctt gttcttctga aatcttacag ttccccttag 180
atgtaggttg gctattggta gcttccgatt cagataagtt tggaacttga cagatgtttt 240
cgggggggctg ctttagagag aggctttgga ctatgcaagg ggaggaagga ggttcagaaa 300
aacggggtcg gggggtcggc aggacgactc ttraartgtg gaaggtggaa gctgggaggg 360
gagataaagg gcaccraaga ccagcttgtt tgctcctatc aaggtgatcc tttccagagc 420
aagagccata tgnatgtcta gtcgcacgag tttgtgccaa gtcctttgca aaaaccttca 480

gatgtnggat ctcatgtaat cttgaagaca tcttagtcgt cctaagggtt aattatttaa 540
ttgatg 546

<210> 148
<211> 1763
<212> DNA
<213> Homo sapiens

<400> 148
ccgaccccag ccctagcctc tggggcattg tctgcccttc gccgtcggcc ctccgcctag 60
ccgcgcactt cccgccctcc caccttcctt tcgcccttcc accakacctc cctcgacgcc 120
cgacagctgc tctgggtact gtttccgggt cagggtgacc tctggggtga ggaaactgcg 180
actgggagcg ggacccaggc gtgcagcatt cgccatgctc cgctcacgcg tgggagactg 240
ggctgtgggg taccggcccg gaaagcacgc agcctccaaa gccgccttcc tcagggaaat 300
ttgcgtgacc ttactgccct ccgtctacag gccttgtacc tctccaggcc gatttttcca 360
caatttaaat cccagttcac ctggtatcca gctccagcaa cttagagcgt ttcacgtcac 420
gccgggcgcc aggcgtcggc ttgtataacc tgaaaacgct cctgtttttc tcatctgtgc 480
agtgggtttt gattcccacc atggccatca cccagtttcg gttatttaaa ttttgtacct 540
gcctagcaac agtattctca ttcctaaaga gattaatatg cagatctggc agaggacgga 600
aattaagtgg agaccaaata actttgccaa ctacagttga ttattcatca gttcctaagc 660
agacagatgt tgaagagtgg acttcctggg atgaagatgc acccaccagt gtaaagatcg 720
aaggagggaa tgggaatgtg gcaacacaac aaaattcttt ggaacaactg gaacctgact 780
attttaagga catgacacca actattagga aaactcagaa aattgttatt aagaagagag 840
aaccattgaa ttttggcatc ccagatggga gcacaggttt ctctagtaga ttagcagcta 900
cacaagatct gccttttatt catcagtctt ctgaattagg tgacttagat acctggcagg 960
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gacagcagaa actagcagac agagaaaaga gagcagccga acaacaaagg aagaaaatgg 1080
aaaaggaagc acaacggcta atgaagaagg aacaaaacaa aattggtgtg aaactttcat 1140
aacacatgtt caaattttat catgccagta ggagaaatct cagctccaca acccaagcaa 1200
catttgtatg gatttaagag tattttaaga agacatactg cttgatttta atacattgat 1260
caggccatcc aggacaccac gattctccca aagtaccttg aactcttagt gattgagact 1320
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tctagctaaa taaatgggtg tatataattt tatggtggaa aagaactgta ctgtctgtta 1500
tgatttcctt caatgtgcat aatgataaaa taaataattt taatattctt ttgtttccat 1560
ggttacctga cctaaattag ataaattgta gggctttagc tttcttattt ttgtcaaaag 1620
ttggtgttga catacattcc ctctaatttg aactggtatt gtttacgttt gatacaacat 1680
taaggaattt gatgattttc atttcatgaa aatgacatta aatgcaataa ttttacttat 1740
cataaaaaaa aaaaaaaaaa aaa 1763

<210> 149
<211> 371
<212> DNA
<213> Homo sapiens

<400> 149
aattcggcac gagcagactt gagagcaata aatgcaaacc taaatgagaa aatggaatcc 60
ctgacagctg tgtccgtatc aagcatcagt ctctcaaaca gttgccccag cctgacagtg 120
ctagtctctg tttaatggta aaaggagact ttgccataat tttcagatga agatgtttcc 180
caaacactgt ttacagaatg agatgtgact ctacagatac ctcatagaag acaatccaag 240
atcatacttc attaacttga cagagtacgt gtcttaaagg aagcatcagg aattccaata 300

tttgcmttta aaatactttt twagggcctt ttatattagg ccatgcttgg aaaactggat 360
ttttttatt a 371

<210> 150
<211> 432
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (3)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (379)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (408)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (421)
<223> n equals a,t,g, or c

<400> 150
atnttcagga atcctcacgc aacccggaag aagcgcaagg gctggaccgc taaacctgag 60
ggcgcccggc ctgcgcacgg gaacctggac tggaacccta cttgcaggtc cccaacttgc 120
gtctctyctc tctgtctcta ccccagccaa ggacaaagac ttctcctccg gaaggcctcc 180
cccagctgag ggaacgttcc aggtcytccc tcggccctgg ctgcgcgccc ggtgccggct 240
ctgacgtggt ttcctctccc ctcaggactg gtcctgctcg ctcctcgtgg cctccctcgc 300
gggcgccttc ggytcctcct tcctctacgg ctacaacctg tcggtggtga atgcccccam 360
cccggaagga caattttgnt gggccaataa atggggtttt gaaatttntt gttggatttg 420
ntgaatgggc tt 432

<210> 151
<211> 401
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (234)
<223> n equals a,t,g, or c

<400> 151
gaaagcaaag ttcaacatca ctggtgcctg cttgaatgac tcagatgacg actcaccaga 60
cttggacctt gatggaaatg agagcscatt ggccctattg atgtctaacg gcagwacgaa 120

aagggtgaag agtttatcca aatctcggcg aaccaagata gcaaagaagg tagacaaggc 180
taggctgatg gcagaacagg tgatggaaga cgartttgac ttggrttcag atgntgagct 240
gcagattgac gagagattgg ggaaagagaa ggcgaccctg ataataagac caaaatttcc 300
ccggaaattg ccccgtgcga accttgctct gaccccaacc gagttcgtga accaggagaa 360
gttgagtttg acattgagga ggatatacaa cagatgaggg t 401

<210> 152
<211> 851
<212> DNA
<213> Homo sapiens

<400> 152
tctccggata actgtgctcc tgacatcctt ccttatggtt ttgggaactg gtctaagatg 60
catacctata tcagacttaa tccttaaaag aagattaatt catggaggac agatgttaaa 120
tggattggca ggtccaactg taatgaatgc agcaccattt ctctctacga cgtggttttc 180
tgcagatgaa agggccacag ccacagctat tgcatcaatg ctcagttatc ttgggggagc 240
atgtgcattt ttagttggac cacttgttgt tccagctccc aatgggacat cacctcttct 300
tgctgcagag agcagcaggg cgcatattaa agatcgcata gaggctgtgt tatatgcaga 360
atttggagtt gtctgcttaa tattttctgc aacactagct tatttcccac cccgacctcc 420
tcttcctccc agtgttgctg cagctagcca gcgtgagtta tcggagaagc gtttgtagat 480
tattaagcaa ttttcgattt ttgatgattg ctttagcata tgccatacca cttggtgtat 540
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atgctggctg gattggattt tggtccatag ttggaggctg tgttgttgga atagctatgg 660
caaggtttgc agattttatc aggggtatgc tgaaactaat tcttctcctc ctgttttcgg 720
gagctacact gtcatccacg tggttcaccc tgamctgttt gaacagcatc acacacctac 780
ctttaaccac agtgacattg tatgcctcct gtattctcct gggagtgttc ttgaatagca 840
gcgtgcctat a 851

<210> 153
<211> 1678
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1663)
<223> n equals a,t,g, or c

<400> 153
ctcgtgccgc acagctctgg gtgtgggagg gggttgtcca gcctccagca gcatggggag 60
ggccttggtc agcatctagg tgccaacagg gcaagggcgg ggtcctggag aatgaaggct 120
ttatagggct cctcagggag gccccccagc cccaaactca ccacctggcc gtggacacct 180
gtgtcagcat gtgggacctg gttctctcca tcgccttgtc tgtggggtgc actggtgccg 240
tgcccctcat ccagtctcgg attgtgggag gctgggagtg tgagaagcat tcccaaccct 300
ggcaggtggc tgtgtacagt catggatggg cacactgtgg gggtgtcctg gtgcaccccc 360
agtgggtgct cacagctgcc cattgcctaa agaagaatag ccaggtctgg ctgggtcggc 420
acaacctgtt tgagcctgaa gacacaggcc agagggtccc tgtcagccac agcttcccac 480
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gccatgacct catgctgcty cgcctgtcag agcctgccaa gatcacagat gttgtgaagg 600
tcctgggcct gccacccagg agccagcact ggggaccacc tgctacgcct caggctgggg 660
cagcatcgaa ccagaggagt tcttgcgccc caggagtctt cagtgtgtga gcctccatct 720

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cctgtccaat gacatgtgtg ctagagctta ctctgagaag gtgacagagt tcatgttgtg 780
tgctgggctc tggacaggtg gtaaagacac ttgtgggggt gattctgggg gtccacttgt 840
ctgtaatggt gtgcttcaag gtatcacatc atggggccct gagccatgtg ccctgcctga 900
aaagcctgct gtgtacacca aggtggtgca ttaccggaag tggatcaagg acaccatcgc 960
agccaacccc tgagtgcccc tgtcccaccc ctacctctag taaatttaag tccacctcac 1020
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cgaagctcga gcctcctgag tcctactgac ctgtgctttc tggtgtggag tccagggctg 1140
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cgtcctctcc ttcggaacac tggctgtctc tgaagacttc tcgctcagtt tcagtgagga 1260
cacacacaaa gacgtgggtg accatgttgt ttgtggggtg cagagatggg aggggtgggg 1320
cccaccctgg aagagtggac agtgacacaa ggtggacact ctctacagat cactgaggat 1380
aagctggagc cacaatgcat gaggcacaca cacagcaagg atgacgctgt aaacatagcc 1440
cacgctgtcc tgggggcact gggaagccta gataaggccg tgagcagaaa gaaggggagg 1500
atcctcctat gttgttgaag gagggactag gggagaaac tgaaagctga ttaattacag 1560
gaggtttgtt caggtccccc aaaccaccgt cagatttgat gatttcctag caggacttac 1620
agaaataaag agctatcatg ctgtggttaa aaaaaaaaaa aanaaaaaga agtcgacc   1678
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<210> 154
<211> 1158
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (449)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (453)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1138)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1148)
<223> n equals a,t,g, or c

<400> 154

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ctttatggtg aaagccttac ggagatgtct gtgagtagca tatcttctgc aggctcttct 60
gtggcctctg ctgtcccctc agcacgaccc cgccaccaga agtccatgtc cacttctggt 120
catcctatta aagtcacact gccaaccatt aaagacggct ctgaagctta ccggcctggt 180
acaacccaga gagtgcctgc tgcttcccca tctgctcaca gtattagtac tgcgactcca 240
gaccggaccc gttttccccg agggagctca agccgaagca ctttccatgg tgaacagctc 300
cgggagcgac gcagcgttgc ttataatggg ccacctgctt caccatccca tgaaacgggt 360
gcatttgcaa tgccagaagg ggaacgtcaa ctggtataat aagcaaaatc acatccaaat 420
ttgttcgcag ggatccaagt gaaggcganc agntggcaga accgacacct caagaagtac 480
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atcaggggaa ccaaaagaaa gagacaagga agagggtaaa gattctaagc cgcgttcttt 540
gcggttcaca tggagtatga agaccactag ttcaatggac cctaatgaca tgatgagaga 600
aatccgaaaa gtgttagatg caaataactg tgattatgag caaaaagaga gatttttgct 660
tttctgtgtc catggagacg ctagacagga tagcctcgtg cagtgggaga tggaagtctg 720
caagttgcca cgactgtcac ttaatggggt tcgcttcaag cgaatatctg ggacatctat 780
tgcctttaag aacattgcat caaaaatagc aaatgagctt aagctgtaaa gaagtccaaa 840
tttacaggtt cagggaagat acatacatat atgaggtaca gtttttgaat gtactggtaa 900
tgcctaatgt ggtctgcctg tgaatctccc catgtagaat ttgcccttaa tgcaataagg 960
ttatacatag ttatgaactg taaaattaaa gtcagtatga actataataa atatctgtag 1020
cttaaaaagt aggttcacat gtacaggtaa gtatattgtg tatttctgtt cattttctgt 1080
tcatagagtt gtataataaa acatgattgc ttaaaaaaaa aaaaaaaaaa aaaaattnct 1140
gcggccgnca agggaatt 1158

<210> 155
<211> 1969
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (479)
<223> n equals a,t,g, or c

<400> 155
gccgcacgag cagccagaga cagcgcgacc cggagccgga gccagagcca gagccagagg 60
gaggacgcag ccgcgccggg gcgcagaacg accagctgag caccgggccc cgcgccgcgc 120
cggaggaggc cgagacgctg gcagagaccg agccaggtaa gcggcgaggc cggggaaggg 180
gggcagccca aggcggaccc ccagagctcg gggtgcaggg acgcggggct ccgcggcgac 240
aggcagaggg accttcccgc ctccgcagcc acgcgcgcgc ccccggaatg aaccctgagc 300
cccagcgtca gggcggcgca ggattctgac accgcaggat tcgcccggtt ccgtgccttc 360
cgttccctgg ggctcagaag ccggcgcgac tgcagcgcca ccgccttcca ccgtcccagg 420
agcggatccc gccccgcgcc acccgcgatc ggcgccagcc ccccggtagt tatgagaant 480
aataataact tattaacagt gacaaagcag gggttgacca gcaaagcctc cgtgtgcttc 540
ccaatcccgt gggcagtaaa gcggtatatt cggggttccc tccggtgtcc aggagagaga 600
gtccacttat tttctttcct gtcacttctg atgaggcgac cgaacgcctc gtttagcgaa 660
gagggaatta aagcccagaa tgagcctgcc tctgcgtctc cagtggcaca agccctctct 720
tgcccacctg gatcctaaca ccggatgtct tttggtctgg ccttcccggg tatcttgttc 780
cacggcattt tccctgcctc cctctcccgc ctctcctcag cacacagatc cagaatcccc 840
atataattct actagacagt agggagaaag ttcaaccacg aaacgtctct aactttgggt 900
tcttgatgat tcttagcaaa tgaatgcgta ataaacatat ttactcactc ttcactccgg 960
agagctcctt agtcatgtga aaaaagtgaa atgtatccac gatgacagtg ggctgtttgt 1020
tcactcacta aagagataag ggtggattga attctgttct cttccctgct aacatgtaac 1080
ttttgtcttc ccatccctcc ttccccactc tcctttccag aaaggcactt ggggtcttat 1140
ctgttggact ctgaaaacac ttcaggcgcc cttccaaggc ttccccaaac ccctaagcag 1200
ccgcagaagc gctcccgagc tgccttctcc cacactcagg tgatcgagtt ggagaggaag 1260
ttcagccatc agaagtacct gtcggcccct gaacgggccc acctggccaa gaacctcaag 1320
ctcacggaga cccaagtgaa gatatggttc cagaacagac gctataagac taagcgaaag 1380
cagctctcct cggagctggg agacttggag aagcactcct ctttgccggc cctgaaagag 1440
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tgtactgcgt gggcagtgga gcccagcttt tkggtaatgc cagctcaggt gacaaccatt 1560
atgatcaaaa actgccttcc ccagggtgtc tctatgaaaa gcacaagggg ccaaggtcag 1620

ggagcaagag tgtgcacacc aamgctattg gagatttgcg tggaaakctc agattcttca 1680
ctggtgagac aatgaaacaa cagagacagt gaaagtttta atacctaagt cattcctcca 1740
gtgcatactg taggtcattt tttttggttc tggctacctg tttgaagggg agagagggaa 1800
aatcaagtgg tattttccag cactttgtat gattttggat gagttgtaca cccaaggatt 1860
ctgttatgca actccatcct cctgtgtcac tgaatatcaa ctctgaaaga gcaaacctaa 1920
caggagaaag gacaaccagg atgaggatgt caccaactga attaaactc 1969

<210> 156
<211> 400
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (359)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (366)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (398)
<223> n equals a,t,g, or c

<400> 156
aattcggcac gagaagaaag aaagaatgaa agaaagaaaa gaaaagaaag aaaggaaaga 60
aaaaggaaag aaagaaagga aagaaaggaa agaaagaaag agagagaaag aaagaaggaa 120
aaggaggaag ggaattccag gtatatacca ctgcatgagt aaaggcaggg ttgtggatag 180
acatagttga tttgtagggc ccttgtttgc caagaatagt cctgctttac ccctgttgtc 240
ctgatgtaat tattaataat actgcctcat tcagtcttaa ataagtcttg grtttggact 300
agaaattata tggctaccyc tttatgtggg actaaaagta attccttgrg acmgggacnt 360
ggagtnaggt gcccaaggaa agctagaagg tagttttntc 400

<210> 157
<211> 722
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (720)
<223> n equals a,t,g, or c

<400> 157
catggtttgg taacctcatg cactgtggga atgtcagagg accccgagat aatgcttcac 60
tgccaagtct gaaaattgtg tccacaagat ttgattggta gtattttcta tcattgtaca 120
acttaaaata tcttctaatt tccatttttt tttttgaca tgagttgtat agaaatgtgt 180
gcttcagttt ctgttatagc aacaactctt gtcacccata gccttacaaa aattcctaat 240

tttaatattt aaattttaga attckacrag cagaattaca aaaagagtaa ctaacaagaa 300
agtgagattg tgatgggata acggaatgtc aagtctaatt gtcaggaaaa gacaaaataa 360
catgggaatg acaatcaaaa tggactaagg acttagaaga tccgaaacta tgaagctact 420
aaaagaaaca ttggggaatg ctccaggaca ttggtctggg caaagatttc ttgagcaata 480
ccttaaaagg acaggcaacc caagcaaaaa tggrcagwtg ggwtcmcwtc magctaaaaa 540
acttctacac agcgaaggaa acaaagtgaa cagaataaca tgggaatgtt ttctgtaatt 600
tagtagtaac tggcaatagt ttacaaacac atttgtgta tactgctgtc attgcactga 660
ttaccttctg ttgtagtgac tttgttctat tagtccactc aattaaaata tttggttttn 720
tt 722

<210> 158
<211> 1200
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (274)
<223> n equals a,t,g, or c

<400> 158
taatattcct ttggattcag agacccacaa ctaccagatt gtcaatcatg accaaaagtt 60
gcttctcatc acttctacaa ccccacaatg gaaaaagaac cgagtgacag tgtatgagta 120
tgatactagg gaagatcagt ggattaatat aggtaccatg ttaggccttt tgcagtttga 180
ctctggcttt atttgccttt gtgctcgtgt ttatccttcc tgccttgaac ctggtcagag 240
ttttattact gaggaagatg atgcacggag tagntctagt actgaatggg acttagatgg 300
attcagtgag ctggactctg agtcaggaag ttcaagttct ttttcagatg atgaagtctg 360
ggtgcaagta gcacctcagc gaaatgcaca ggatcagcag ggttctttgt aaatagtatt 420
ttgagacact aagatgtttc tactgctacg gratgtattt taaacacata tcgtttcttt 480
ttcttggaaa aaaagttgat taggaccaca gatttggttt agaaagggta atattttgaa 540
atactacaag gtttagacag tccatgaatc gacctgttta ataatttacc atcctgaaag 600
tccagaatta aaatatggaa gcaagaacta tataattgat taggatgctt ggtaggtttt 660
tttcattgtt caaatattca ttgcacagtg gattgttttg attagttagt atgctttttt 720
tttaattaat tcagtcttct gttaattttt aagttttggt tagtgccaca aggaatttaa 780
ctttttgatt tgtataatag aaaactgaac taggaattgt tagcggggtt ttgaaggatg 840
tgtactttcc ttcaaaataa agtggtagat tttcaaaatt ttacactagt cagttcttta 900
tattctaagt taaatgtagt ttgtaaaatt attttggttt tcttctacaa aggaaaaaat 960
tggatttata tatataaggt tactgcataa tgatttcatt ttgataatgt gcagaatggc 1020
ctcataagct cacagaaagt aaaaaaaaaa aaaaaaaaaa aagaaaaaat caggattcca 1080
ctgttttaaa agaaatctca gtttttattt tggaatataa aatgtgtatt tggtatatgt 1140
gaccaatttt ctatcccaaa aaacacccat tcttagtaat gtcatgaatt aaacaccctt 1200

<210> 159
<211> 345
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (316)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (321)
<223> n equals a,t,g, or c

<400> 159
ttcggcacga gagaaaagta aaaaaaagaa agaaagaaag aaacaaacaa acaaaacaac 60
tggcatacat atatctccta aatacaggaa gaagtattca taatctcact ctttagcatg 120
gtacaaagct aaccacaact aawttattgt atataargcc acgtgaagtg stgtgtgaca 180
gccttatttt gtgaataggg ctgagaaaac cagttcaaat tctcctgaga ctatttcaga 240
ggrgttaaaa tttgaactcg tttaaaaatc atgrtttatt tacttaatat taagtttagg 300
ttaacgggca gaaaangagg ngcctggggg catcacccaa atttt 345

<210> 160
<211> 476
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (312)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (377)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (421)
<223> n equals a,t,g, or c

<400> 160
aattcggcac gagagacacc agagtgaagg agagaggcca tgctgtgtcc gagaagctcc 60
tactggggtg gaagggacag ctccacaaag gctgctcttg caggggctct cctgcagcaa 120
ggtgcctgct gactgtcccc agactgtctc ccgacacaga gggatgcaaa ggcagcctct 180
tcctgctcag tggaataggg aaattatatc acctttcact tcccactctc acttctgccc 240
ctgctaccct tagtctttgg cttttgctga cattttcccc tcttatcttt tctcctgacc 300
aagttctagg tntttcatag ggcagtctta ggtgagggtt ggaaccccaa tgaagttggg 360
caacagaaac ccagctnaca atggctgttc actgtgggca agctgtttcc ccttcatctt 420
ntaaaagtgg aggtggggtt agtgtatgag tctgggtttc cattcaactg tgtgtg 476

<210> 161
<211> 520
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature

<222> (512)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (520)
<223> n equals a,t,g, or c

<400> 161
aattcggcac gagctgcgcg cggctacagc acggttcgtt tttcctttag tcaggaagga 60
cgttggtgtt gaggttagca tacgtatcaa ggacagtaac taccatggct cccgaagttt 120
tgccaaaacc tcggatgcgt ggccttctgg ccaggcgtct gcgaaatcat atggctgtag 180
cattcgtgct atccctgggg gttgcagctt tgtataagtt tcgtgtggct gatcaaagaa 240
agaaggcata cgcagatttc tacagaaact acgatgtcat gaaagatttt gaggagatga 300
ggaaggctgg tatctttcag agtgtaaagt aatcttggaa tataaagaat ttcttcaggt 360
tgaattacct agaagtttgt cactgacttg tgttcctgaa ctatgacaca tgaatatgtg 420
ggctaagaaa tagttcctct tgataaataa acaattaaca aataaaaaaa aaaaaaaagg 480
gggggccccc tctaaaaggt ccaagcttac gnacgggtgn 520

<210> 162
<211> 339
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (109)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (334)
<223> n equals a,t,g, or c

<400> 162
aattcggcac gagcgcgcct ccacgcccag ctaattttg tatttttggt agagacgggg 60
tttcttcacg ttggctaggc tgatcttgaa ctcctgacct caagtggtnt gcctgcctca 120
tcctcccaaa gtgctgggat tacaggcgtg acacctgcac ccacccatgc tctagtacat 180
cctaaagaat gcctttagtt cctctttcct gacattactc tgcttaaatt ccccagattc 240
aagctttttg agaatcctat ctcagcattt tgggcatcag gccatgttat atataggtrc 300
acaacttcta ggccttgttt agttggacag gttnaaaag 339

<210> 163
<211> 357
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (343)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (349)
<223> n equals a,t,g, or c

<400> 163
aattcggcag agcagaacat tggtatgcgg cacatgactg tagatcttct cattaataat 60
aggcaacctg gtcaggtgca cgartctagg gttcagaatc caacaggctc aaattcaagt 120
ccagctcagc cacgtggctg atgctgtctg aacctcagcg tcctcagctg ttaaacagag 180
gtaaccatcc ccatctcagc agctttggga ggaaattaaa tgagatatat tggggatcca 240
gataaccaat aaaatatcaa atcactttac cagttcaagc tcttaccact tcagtgattg 300
catgggcttt atcactgacg gatggaactc aggggttcca ggngttcgng acccagc 357

<210> 164
<211> 1079
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (303)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (831)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (993)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1058)
<223> n equals a,t,g, or c

<400> 164
ggcacgagct tggcctccag agtgctggga ttacaggtgt gagctaccgc gcccggccta 60
ttatcttgta ctttctaact gagccctcta ttttctttat tttaataata tttctcccca 120
cttgagaatc acttgttagt tcttggtagg aattcagttg ggcaatgata acttttatgg 180
gcaaaaacat tctattatag tgaacaaatg aarataacag cgtattttca atattttctt 240
attccttaaa ttccactctt ttaacactat gcttaaccac ttaatgtgat gaaatattcc 300
tanaagttaa atgactatta aagcatatat tgttgcatgt atatattaag tagccgatac 360
tctaaatara ratacccactg ttacagataa atggggcctt taaaaatatg aaaaacaaac 420
ttgtgaaaat gtataaaaga tgcatctgtt gtttcaaatg gcactrtctt yttttcagta 480
ctacaaaaac agaataattt tgaagtttta gaataaatgt aatatattta ctataattct 540
aaatgtttaa atgcttttct aaaaatgcaa aactatgatg tytagttgct ttattttacc 600
tctatgtgat tatttttctt aattgttatt ttttataatc attatttttc tgaaccattc 660

ttctggcctc agaagtagga ctgaattcta ctattgctag gtgtgagaaa gtggtggtga 720
gaaccttaga gcagtggaga tttgctacct ggtctgtgtt ttgagaagtg ccccttagaa 780
agttaaaaga atgtagaaaa gatactcagt cttaatccta tgcaaaaaaa naaaatcaag 840
taattgtttt cctatgrgga aaataaccat gagctgtatc atgctactta gcttttatgt 900
aaatatttct tatgkctcct ctattaagrg tatttactaa aactctgtaa tctccaaaat 960
attgctatca aattacacac catgttttct atnattctca tagatctgcc ttataaacat 1020
ttaaataaaa agtactattt aatgatttaa aaaaaaanaa aaaaaagaaa aaaaaaaaa 1079

<210> 165
<211> 1325
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1302)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1313)
<223> n equals a,t,g, or c

<400> 165
ttaaaacaag atacatacat agtataacac acctcacagt gttaagattt atattgtgaa 60
atgagacacc ctaccttcaa ttgttcatca gtgggtaaaa caaattctga tgtacattca 120
ggacaaatga ttagccctaa atgaaactgt aataatttca gtggaaactc aatctgtttt 180
tacctttaaa cagtgaattt tacatgaatg aatgggttct tcactttttt tttagtatga 240
gaaaattata cagtgcttaa ttttcagaga ttctttccat atgttactaa aaaatgtttt 300
gttcagccta acatactgag tttttttttaa ctttctaaat tattgaattt ccatcatgca 360
ttcatccaaa attaaggcag actgtttgga ttcttccagt ggccagatga gctaaattaa 420
atcacaaaag cagatgcttt tgtatgatct ccaaattgcc aactttaagg aaatattctc 480
ttgaaattgt ctttaaagat cttttgcagc tttgcagata cccagactga gctggaactg 540
gaatttgtct tcctattgac tctacttctt taaaagcggc tgcccattac attcctcagc 600
tgtccttgca gttaggtgta catgtgactg agtgttggcc agtgagatga agtctcctca 660
aaggaaggca gcatgtgtcc tttttcatcc cttcatcttg ctgctgggat tgtggatata 720
acaggagccc tggcagctgt ctccagagga tcaaagccac acccaaagag taaggcagat 780
tagagaccag aaagaccttg actacttccc tacttccact gctttttcct gcattkaagc 840
cattgtaaat ctgggtgtgt tacatgaagt gaaaattaat tctttctgcc cttcagttct 900
ttatcctgat accatttaac actgtctgaa ttaactagac tgcaataatt ctttcttttg 960
aaagctttta aaggataatg tgcaattcac attaaaattg attttccatt gtcaattagt 1020
tatactcatt ttcctgcctt gatctttcat tagatatttt gtatctgctt ggaatatatt 1080
atcttctttt taactgtgta attggtaatt actaaaactc tgtaatctcc aaaatattgc 1140
tatcaaatta cacaccatgt tttctatcat tctcatagat ctgccttata aacatttaaa 1200
taaaaagtac tatttaatga ttaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1260
aaaaaaaagg gaaaaaaaaa aaaaaaaaaa aaaaaaaaaa angggggggg ggnccaaaaa 1320
aaaaa 1325

<210> 166
<211> 394
<212> DNA

<213> Homo sapiens

<220>
<221> misc feature
<222> (316)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (341)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (376)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (392)
<223> n equals a,t,g, or c

<400> 166
aattcggcac gagtttgcat ccaaattgtt tgacctttgt gcagtggctc ccattatcaa 60
ctggggaacc agtacaatct ttacctagtt actactgagg ttgttctctc tccatcacaa 120
aatttcatgc tatttatctg tgagaaaatg cctgaggact ttcacacagt aattcatctt 180
atctggaacc cttaggatca gatgtagacc gagcaaatgt caagttcaca gagaacacct 240
gtgtcttcag aacattaaag ggcaccatta gagcttgttt cccttcactt tacatgcaca 300
tttttggsat aagttngggg ctkratgatg ttgtcatags naatactgct agratgrttg 360
ctgtactcat tcactnccaa aaaaggggggg gntg 394

<210> 167
<211> 517
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (122)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (215)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (400)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (401)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (472)
<223> n equals a,t,g, or c

<400> 167
ataattgcgg ctctttctcc tattcagatt ttacccagtg atggaaaaga tcaattttct 60
tgtggaaatt cagtggctga ccaagccttc cttgattctc tctcagccag cacagctcag 120
gncagttcgt cggctgccag caacaatcac caggtacgtc tcacttcctc cttctggatg 180
tggctggctt tacggaaaac agagcgtatt tgtgnaaggc ttgtgatgca ttatagctat 240
tgccattccc caaaagcaaa aacaaagtcg ctttaggttg ttctgtggca tttctgttgg 300
gtactaacaa agaaatcacc tgttwagcct gataatgact gtttgcaaat ttattataag 360
agaaaaggca gggtattgag ggttgctttt aggaagtctn nccatgatat ggaacacaga 420
ccccagaaac ttgcaaatac cctcttaggt taaggcatgg aaagaggagg angagagagg 480
tcttgtttgt tgaggaggtc catgtcaggc cttggcc 517

<210> 168
<211> 341
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (335)
<223> n equals a,t,g, or c

<400> 168
cttccctcag cccttggcca acagcattct actttctgtc tctacggatt tracacttta 60
gtagcctcat gtaggaagaa tcataatact tgtytttttg tgactggctt atttcactta 120
gcataatatt ttcaatgttc atccattttg aagctccatg tgagtgggca ggaacttgtt 180
aactggaggc cttcactgag aagtgattaa ggtgatgaat acctgccagt gcagtggctt 240
cacacctgta ctccagcact ttggggaggc caaggcagga agatcatttg agccccagga 300
tttsgggacc accttkggca atatagtgag acccngtgtt t 341

<210> 169
<211> 350
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (293)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<222> (305)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (311)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (314)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (338)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (343)
<223> n equals a,t,g, or c

<400> 169
ttcggcacga ggtcttgact cctacccccc tacaacacat ataaaatcag ttccagatag 60
atcacacatc taaatgtgaa atgcaaaata ataaagcttt aagaaaaaaa gtaatggaac 120
catcttcatg atcttagagt aagtagagat ttattaagta ggatattaaa ggaacactat 180
aaatttaggg aaaaaatcaa tatattgatt atattaaaat taaggaactt ttcctcatta 240
agaggccaca aagtatttgt agtatacaca tccaacaaaa gttccatatt ccngaatwtw 300
tgganggaat nccnatggta cgttaaaaaa aggccagncc canggggggg 350

<210> 170
<211> 441
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (111)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (143)
<223> n equals a,t,g, or c

<400> 170
aattcggcac gagacatggt gaacctggtc tctacataaa atacaaaaac ttagatgggc 60
atggtggtgt gtgcctatag tcccactact tgtggggcta aggcaggagg ntcacttgag 120
ccccggaggt cgaggctaca gtnagccaag agtgcactac tgtactccag ccagggcaag 180
agagcgagac cctgtctcaa taaataaata aataaataaa taaataaata aataaataaa 240

taaaaaaaaa caaagttgat taagaaagga agtataggcc aggcacagtg gctcacacct 300
gtaatccttg cattttggaa ggctgaggca ggaggatcac tttaggcctg gtgtgttcaa 360
gaccagcctg gtcaacatag tgagacaytg tytytaccaa aaaaaggaag gaagggacac 420
atatcaaact gaaacaaaat t 441

<210> 171
<211> 403
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (399)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (401)
<223> n equals a,t,g, or c

<400> 171
ttttcatgaa cctcttccct gggaaacctt atgactcaac agtcaaaggt gtccgaatag 60
taaagatggt tttcagtgat caggtctgtg cccatgcctg gccttggata gactctgaaa 120
tgagattctt tgtttgattg atggggtgat ggtttctgtt gtgtacattt gaaggaaacc 180
agtttcccca cccaaaattt ctaaggagtt taatctttgg ggtrtagggg agttaaacta 240
cactgagtca aggaagtaat tgattgcata tttcctctaa aagtcagcta tggrttgata 300
ttgactaaaa caaactagca gttctcttcc accaccaagt cmgagcgtct gttcaccatt 360
ctgcatggtt aaaagraccc acttagggat gggtaatgnt ncc 403

<210> 172
<211> 984
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (48)
<223> n equals a,t,g, or c

<400> 172
caagatattt acttccgctc caaacaaaga tgggccagct aacgagcncg ggggaaacat 60
ccgccccggaa ggccacttga aggcacttcc gccctctctt aacatggagc cggcggaagg 120
ggtggtgtag ggccgggcga taatggcggc gtcgaggctg gagctaaacc tggtgcggct 180
gctatmccgc tgcgaggcga tggcagcgga gaaacgggac ccggacgagt ggcgcctgga 240
gaagtacgtg ggagccctag aggacatgtt gcaggccctg aaggtccacg cgagcaaacc 300
ggcctctgag gtgatcaatg aatattcctg gaaggtggat ttctgaagg ggatgctgca 360
agccgagaag ctgacctcct cctcagagaa agcactggcc aaccagttcc tggcccctgg 420
ccgtgtgcca accacagcca gagagcgagt gcccgccaca aagacggtgc atctgcagtc 480
acgggcgcgg tacaccagcg agatgcggag tgagctacta ggcacggact ctgcagagcc 540
tgaratggac gtaaggaaga gaactggagt ggcagggtcc cagccagtga gtgagaagca 600
gtcggcagct gagctagacc tcgtcctgca gcgacatcag aacctccagg aaaagctggc 660

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ggaagagatg ctaggactgg cccggagcct caagaccaat accctggccg cccagagtgt 720
catcaagaag gacaaccaga ccctgtcaca ctcactgaaa atggcggacc agaacctgga 780
gaaactgaag acggagtcag agcgtctgga gcagcacacg cagaagtcag tcaactggct 840
gctctgggcc atgctcatta tcgtctgctt catcttcatt agcatgatcc tcttcattcg 900
aatcatgcct aaactcaaat aaagaccccc gcccaaaaaa aaaaaaaaaa aaaaaaaaaa 960
aaaaaaaaaa aaaaaaaaaa aaaa                                        984

<210> 173
<211> 1194
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (3)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (9)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (12)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (13)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (16)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (110)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1153)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1175)
<223> n equals a,t,g, or c
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<220>
<221> misc feature
<222> (1192)
<223> n equals a,t,g, or c

<400> 173
cgnggcggna anntantggc cccccccctaa agggaacaaa agctggagct ccaccgcggt 60
ggcggccgct ctagaactag tggatccccc gggctgcagg caaaagggan aattcaaaat 120
ttagaaaaaa cattagaaat gttaatatgg gatattttg acttaagaca ttcagaaaag 180
ttaatgtttt aacacgatat gtgattatag aattctattc atatatgtgt tcacatttat 240
acactttgct atactttgta tttataaata taattctgtt agataaataa gtgattcata 300
ttttgtcaaa actattttaa aatttcaata tttaaaatat ttttgaatca ctggttttcg 360
ttaagtggca tcatagrtga gatttgattc catgtagcat ataattttag attgttcctc 420
tctcacccct tttaaactcc ttcaagcatt gctattactg gggttgcctt tgggaaaact 480
tacttctaga tactaccata tatctgaaat agtagaggtg gatgttaata aaattcataa 540
aataatcatg tattactttt tttgatttac cactggaagg aaatacagtc atgtgcaata 600
taatgacgtt ttggtcattg agacccacat gtgtgacagt ggtcccataa ggatgttgct 660
gaaaaattcc tgttgctgcc tagtgacact gtagccatcg taacgccata gcacgacacg 720
ttactcacct gttcatggtg atgctggtgt aaacaaacct gtgctgccag tcatacaaaa 780
gtatagcaca atgacaatta tgtacagttt atcataattc ttgataataa atgactatgt 840
tacaggttta tgtattgatt ccactttttg tcattatttt ggaatgtact cctactaatt 900
ataaaaaaga aaaggttaac tgtaaaaaag cctcaggcag gtcctttagg aggcattcca 960
gaagaagaca ttgttaccat aggagatgac agctctatgt gtgttattgc ccctgaagac 1020
cttctagtgg gacaggatat ggaggggaaa gacagtgaca ttggtgatcc tgaccctgtg 1080
taggcctagg ctaatgtgtg tgtgtcctcg tttttaacaa gaaagtttaa aaagtaaaaa 1140
aaaaraaaaa ggnctcgaga aagggcaaaa gggcncttgg gcaaatggca gnac 1194

<210> 174
<211> 701
<212> DNA
<213> Homo sapiens

<400> 174
gcttccactg atcttgccca tctgatgtta ccatgtttgt tgtaaaggaa gagactggca 60
ttctggacaa ctggcatcag agactggctg acatggagaa cccactctgt gtgtgctgag 120
grcagggcac tcaccagtgc agaggcagaa gtgggtgcct gtcctcgagg gttaacccgc 180
tttgcctccc gcccacagcc cctccacctt ctaaaagctc aagagatgat cagactgaaa 240
cacccgccca tcttgctgtt ctgcctaggc tggaagacct ggcccaggtc atggaggccc 300
ctgctccact tgccagattc gcaggagtct tctgaccaga gctgtcgcac cttgctgctg 360
ccactggcac tgctgccatt ctcatcctct tgggggcctt cattggtgcc acattctttg 420
tagccacctg ggctgtcagc catgagggaa ggaccctcgt tttagtctcg gattgtaagg 480
tttccatctc tgtaccttct cacaaagaag agtcagggcc caagcttaat gacctgtttt 540
ttaattcagg aaggtaaatc tcgttctctc gtcacacccg gaattacagg tccatttgtc 600
ctcagtggga gttgatcttt gattcctaca aagaacaata aagtccggtg aattcccata 660
aaaaaaaaaa aaaaaaaact cggggggggg ccccggtaac c 701

<210> 175
<211> 1181
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (7)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (24)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (79)
<223> n equals a,t,g, or c

<400> 175
tggggganatt tccccgaacc ggcnttcccg ggtcgaccca cgcgtccgcg gacgcgtggg 60
ccaaagtgtt gtgtgtgtnt gtgtgagtgg gtgcgtggta tacatgtgta catatatgta 120
taatatatat ctacaatata tattatatat atctatatca tatttctgtg gagggttgcc 180
atggtaacca gccacagtac atatgtaatt ctttccatca ccccaacctc tcctttctgt 240
gcattcatgc aagagtttct tgtaagccat cagaagttac ttttaggatg gggagagggg 300
gcgagaaggg gaaaaatggg aaatagtctg attttaatga aatcaaatgt atgtatcatc 360
agttggctac gttttggttc tatgctaaac tgtgaaaaat cagatgaatt gataaaagag 420
ttccctgcaa ccaattgaaa agtgttctgt gcgtctgttt tgtgtctggt gcagaatatg 480
acaatctacc aactgtccct ttgtttgaag ttgctttagc tttggaaagt tactgtaaat 540
gccttgcttg tatgatcgtc cctggtcacc cgactttgga atttgcacca tcatgtttca 600
gtgaagatgc tgtaaatagg ttcagatttt actgtctatg gatttggggt gttacagtag 660
ccttattcac ctttttaata aaaatacaca tgaaaacaag aaagaaatgg cttttcttac 720
ccagattgtg tacatagagc aatgttggtt ttttataaag tctaagcaag atgttttgta 780
taaaatctga atttgcaat gtatttagct acagcttgtt taacggcagt gtcattcccc 840
tttgcactgt aatgaggaaa aaatggtata aaaggttgcc aaattgctgc atatttgtgc 900
cgtaattatg taccatgaat atttatttaa aatttcgttg tccaatttgt aagtaacaca 960
gtattatgcc tgagttataa atattttttt ctttctttgt tttattttaa tagcctgtca 1020
taggttttaa atctgcttta gtttcacatt gcagttagcc ccagaaaatg aaatccgtga 1080
agtcacattc cacatctgtt tcaaactgaa tttgttctta aaaaaataaa atattttttt 1140
cctatggaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa a 1181

<210> 176
<211> 489
<212> DNA
<213> Homo sapiens

<400> 176
aatcgctgaa ccaggagcgg agttgcagga ggagaytcac cactcacttc agcctggtga 60
cagrgggagc tctktcttaa aaaaaaaaaa aaaatcatct gtaaaataaa ttccgggata 120
gtcgttttgt tcaaggaaat gttttgtaaa ttgagctcac actatataat ctttattgtc 180
ctatcctgat gtataataca gcaggtataa ttacaccaag cgctatagtt ataaatatgg 240
catgaagtga actatggcct tttatttcct tccagtgtga acacagcagg tgtgagatgt 300
catcttggaa gacaggcctt gcagaaatag gcctacatcc aaaatattat cttgtgactc 360
catgaaccat tcattaaccc tttgtatctt tgagtgaaaa ttttactcaa aagttgcatc 420

tggaagttcg aagaaattac ttgaaataaa aataaagatt tctatataga taaaaaaaaa 480
aaaaaaaaa 489

<210> 177
<211> 253
<212> DNA
<213> Homo sapiens

<400> 177
aattcggcac gagcccgggw caggcacaca ggcccaggtg tgtaggccac agcagccgca 60
gtcctgaaag sctgcaacac ccagacctcc aggagagacc aggcccagga tgcctcgcct 120
gttcttgttc cacctgctag aattctgttt actactgaac caattttcca gagcagtcgc 180
ggccaaatgg aaggacgatg tkattaaatt atgcggccgc gaattagttc gsgcgcarat 240
tgccattttg ggg 253

<210> 178
<211> 393
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (214)
<223> n equals a,t,g, or c

<400> 178
aattcggcac gagagcttat tcattgaagg agtaagtggc tgctcactcc tttctgctga 60
aactctttcc tgtccttgta gcctagtgtg gaatgggagc agggtcacag tgaaagagct 120
gaatctcccc acccacccac actgcagcag gctgcggctg gccgacttgt taattgccga 180
gcaggaacac agcagcaagc tgcgggcacc cctnacttgc tacagttgat ggctgtgtgt 240
ctctcccagg acctagagaa aacccgsctt gtgtacgagc gcatcactat cggcacattg 300
ttcatgtcct tcatgaacgr gtaaactgct gtttccgtgg rttttcaaaa aaaaaaaaaa 360
aaaaaaaaaa aaaaaaaaag ctcgagggtg ggc 393

<210> 179
<211> 465
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (377)
<223> n equals a,t,g, or c

<400> 179
attataagcg acgatggttc tgttgctatg aacacagcag tcggtccctg tcattgtcca 60
cccaggagtg gccttgttaa ttccaagtgg catgtatctt ccctctgagc ttcatttctt 120
caagatgctc tgggtggtgg gatgggagac catcctgcag ccctcctcag accttatcaa 180
ttcattgaga gattgcaaag ctgaaagcac ctccggccac tcctgggaga cagacccttt 240
ggtgatgaaa taaaccagtg acttcagagc ctatggtctc aactgtgctt gaaaaacact 300
gtctctgaaa acaactttgt gattctccct gctccctgtg gacaaaagca cataattctg 360

ctgttacggg tacttgnstc atacgagctt tcatgttcag catgcaatgg aatcatgctt 420
gtccatgtga aataaatatg gctctctcgt gtccttaaaa aaaaa 465

<210> 180
<211> 532
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (68)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (140)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (496)
<223> n equals a,t,g, or c

<400> 180
cttgggttca gggaaaccag agattatacc aagacgggtc attctgcgcc atggaaaaca 60
tccttggnat ttaattgctg ctgacaataa aggtaagggc tgggcttgga tacagcattc 120
cccagataga gatgctagan aaagtgcata gctatggggt gcacagctct gtttgccttc 180
atcattgtaa cccgtagaaa gaaaacttga gtaaggtcaa ggtttccatg ctttccttaa 240
agtgtggagc cttttattcc atgaaaaggt tatacaaaaa tccaggttat caagcaaata 300
aacaagcagt tcttactcag ataaacaaga tacaccccct caccctacct gctcaatttc 360
tctttctcca ctcccccaaa cccacctcca ttgtagttcc tgcagggggt cccgtaagyt 420
tattttgaaa atcactaggg tgggctkggg cgcggtggst tcaggatgtw aatyccagca 480
ctttggggrg ggcccnggga aggcagttca ttttggggtc aaggggtttt tg 532

<210> 181
<211> 814
<212> DNA
<213> Homo sapiens

<400> 181
aattcggcag agtaaaattc aaataattat aagcatttgg caaaaacaag agaaaagaaa 60
cttgccatat tttacaagct gcaattttag aaaagcttta acttaatgat agttttatca 120
ttgtttcttt gtcccaaact tatccagggc catagaagta tgaatctaat taaaacagaa 180
atgggaatta ttgcacagaa atgggaaata actaatttta aatcagtcaa attggcttct 240
tattaaatac aataattctt atgraaatca tagtacccta ttttcagaca cagctgccag 300
tttacacatt tctcagtatc ctgaarggra aaaagtatag ccccrcttat actatgtaaa 360
attaccaata aaatattttt atgactacag attttgcatt tttgtttaca actatttaaa 420
gagttttatg ttgtatttag aatttcaacc tagaaaccac acagtactta aattctcctg 480
gggtctcctg ctttctctta accatttgct taatatatat ctacctaaag gagacttctg 540
aattgtaaat gaacttaaaa atagaatgtg gatgcaaaat atcacataag acatcatgat 600
aacatttgaa gaaaaaataa aactgtagac cctaacagtt gtgatatttg gtggkttcat 660

gtggtaatgt aattttctgk ttaattacag tactttttac aggcacagtg gkactgtctt 720
ttttgtaaga tgcyagttgt gaaatacaat taattgcata cagtaaaagt ctgtgattaa 780
aacatttata tacctcaaaa aaaaaaaaaa aaaa 814

<210> 182
<211> 317
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (315)
<223> n equals a,t,g, or c

<400> 182
taattcggca cgaggaacca ctgttcctta caggtaagcc agcatgatag ttagaccaaa 60
ccatcccaat agagacttgg catgcattca acaaacatcc caggtgccta gggtgtgccc 120
agcaccattc caggagctgc cagtaaagga aacaagactg ctgtgtggcc aggtgcggtg 180
gctcacatct gtaatctcag cactttggga atgccgaagt gagtggatca cctgaggtca 240
ggagttcaag accagcctgg gccaacatgg tgaaacccca tttttactt aaaaaaaaaa 300
aacttggggg ggggncc 317

<210> 183,
<211> 243
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (169)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (181)
<223> n equals a,t,g, or c

<400> 183
tataaaagaa aaaaaaaggc tgtacaaaaa tttcttttrt acagagactg trtaaaagaa 60
aaaaaaaaag aaatacmtgt gttcttaaaa ccatttgtat attttcattt ctagaccaca 120
ctgtagctaa ttattgttat taaatgttaa gataatttaa gtatataana taagtattga 180
nccgggcatg gtggctcacc cctgtaaatc tcagcacttt gggaaggctg aaggcggggg 240
gtt 243

<210> 184
<211> 1148
<212> DNA
<213> Homo sapiens

<400> 184
aattcggcag aggggccata caaaaatttt ggacttgtta ataccactta ctaaccgggc 60

ctgtaacact gggctaaaca aagtaagccc tgtttactca gcagtgtttg ggggacatga 120
agattgccta gaaatattac tccggaatgg ctacagccca gacgcccagg cgtgccttgt 180
ttttggattc agttctcctg wgtgcatggc tttccaaagg agtggagctg tragttcttt 240
ggaattgtga acattctttt gaaatatgga gcccagataa atgaacttca tttggcatac 300
tgcctgaagt acgagaagtt ttcgatattt cgctactttt tgaggaaagg ttgctcattg 360
ggaccatgga accatatata tgaatttgta aatcatgcaa ttaaagcaca agcaaaatat 420
aaggagtggt tgccacatct tctggttgct ggatttgacc cactgattct actgtgcaat 480
tcttggattg actcagtcag cattgacacc cttatcttca ctttggagtt tactaattgg 540
aagacacttg caccagctgt tgaaaggatg ctctctgctc gtgcctcaaa cgcttggatt 600
ctacagcaac atattgccac tgttccatcc ctgacccatc tttgtcgttt ggaaattcgg 660
tccagtctaa aatcagaacg tctacggtct gacagttata ttagtcagct gccacttccc 720
agaagcctac ataattattt gctctatgaa gacgttctga ggatgtatga agttccagaa 780
ctggcagcta ttcaagatgg ataaatcagt gaaactactt aacacagcta atttttttct 840
ctgaaaaatc atcgagacaa aagagccaca gagtacaagt ttttatgatt ttatagtcaa 900
aagatgatta ttgattgtsa gataggttag gttttggggg gccagtagtt cagtgagaat 960
gtttatgttt acaactagcc ttcccagtaa aaaaaaaaaa aaaaaaaatt gtaaacatca 1020
cttatattac tttattgcag cttcatcacc agtacattat atgttgtaat atttatttac 1080
ctgatcattt tgatcatttt ctgctttatt ttgctaataa actgtgatgt tacttctaaa 1140
aaaaaaaa 1148

<210> 185
<211> 1971
<212> DNA
<213> Homo sapiens

<400> 185
gtactttaac aattcmcart actatagtay tgggaattgt taaaagtaca ttcctctgaa 60
agataagaat cactggcttc tatgcgcttc ttttctctca tcatcatgtt cttttacccc 120
agtttcctta catttttta aattgtttca gagtttgttt tttttttagt ttagattgtg 180
aggcaattat taaatcaaaa ttaattcatc caatacccct ttactagaag ttttactaga 240
aaatgtatta cattttattt tttcttaatc cagttctgca aaaatgacct ataaatttat 300
tcatgtacaa ttttggttac ttgaattgtt aaagaaaaca ttgtttttga ctatgggagt 360
caactcaaca tggcagaacc atttttgaga tgatgataca acaggtagtg aaacagctta 420
agaattccaa aaaaaaaaaa aaaaaaaaaa aaaaagcaaa actgggtttg ggctttgctt 480
taggtatcac tggattagaa tgagtttaac attagctaaa actgctttga gttgtttgga 540
tgattaagag attgccattt ttatcttgga agaactagtg gtaaaacatc caagagcact 600
aggattgtga tacagaattt gtgaggtttg gtggatccac gcccctctcc cccactttcc 660
catgatgaaa tatcactaat aaatcctgta tatttagata ttatgctagc catgtaatca 720
gatttattta attgggtggg gcaggtgtgt atttacttta gaaaaaatga aaaagacaag 780
atttatgaga aatatttgaa ggcagtacac tctggccaac tgttaccagt tggtatttct 840
acaagttcag aatattttaa acctgattta ctagacctgg gaattttcaa catggtctaa 900
ttatttactc aaagacatag atgtgaaaat tttaggcaac cttctaaatc tttttcacca 960
tggatgaaac tataacttaa agaataatac ttagaagggt taattggaaa tcagagtttg 1020
aaataaaact tggaccactt tgtatacact cttctcactt gacattttag ctatataata 1080
tgtactttga gtataacatc aagctttaac aaatatttaa agacaaaaaa atcacgtcag 1140
taaaatacta aaaggctcat ttttatattt gttttagatg ttttaaatag ttgcaatgga 1200
ttaaaaatga tgatttaaaa tgttgcttgt aatacagttt tgcctgctaa attctccaca 1260
ttttgtaacc tgttttattt ctttgggtgt aaagcgtttt tgcttagtat tgtgatattg 1320
tatatgtttt gtcccagttg tatagtaatg tttcagtcca tcatccagct ttggctgctg 1380
aaatcataca gctgtgaaga cttgcctttg tttctgttag actgcttttc agttctgtat 1440
tgagtatctt aagtactgta gaaaagatgt cacttcttcc tttaaggctg ttttgtaata 1500

tatataagga ctggaattgt gtttttaaag aaaagcattc aagtatgaca atatactatc 1560
tgtgttttca ccattcaaag tgctgtttag tagttgaaac ttaaactatt taatgtcatt 1620
taataaagtg accaaaatgt gttgtgctct ttattgtatt ttcacagctt tgaaaatctg 1680
tgcacatact gtttcataga aaatgtatag cttttgttgt sctatataat ggtggttctt 1740
ttgcacattt agttatttaa tattgagagg tcacgagttt ggttattgaa tctgttatat 1800
actaaattct gtaaagggag atctctcatc tcaaaaagaa tttacatacc aggaagtcca 1860
tgtgtgtttg tgttagtttt ggatgtcttt gtgtaatcca gccccatttc ctgtttccca 1920
acagctgtaa cactcatttt aagtcaagca gggctaccaa cccacacttg a 1971

<210> 186
<211> 366
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (349)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (353)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (366)
<223> n equals a,t,g, or c

<400> 186
aataacaatg taattatttt yggcakascc ttgcctgact tctgaggacc tcactaagtc 60
tagttctagc ctttgtagaa tggtcaactt ctttcatcaa ggctttggtt tcattactgg 120
tgtctgaatt agttccactc ctagcttgac ccagatttta gtttttatta tggatttttt 180
cttcaaactt gtttatttaa tattaagttt tcatttttgg cagcatatgg atgattttat 240
ttttaataat catatctctt agtaaactaa tggktaaata atattaaagt ataagaggct 300
aaaattgggc caggtgtggt ggctcacgcc tgtaaatccc cgcactttng ggnggctgag 360
gcaggn 366

<210> 187
<211> 350
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (341)
<223> n equals a,t,g, or c

<400> 187
aattcggcac gagaaagagt tgccaaaaat aaaaaatatt attgtaaggt aaaaaatttc 60
ataaatgggc ctaatagtgg gatggatata actgaaaact aagatggtga tgaggaagac 120

agtcaagaat aaatatacca aagtagcaaa gaaatacctg tgcaagtaga atagcttgct 180
tcaaacagat gagatttgtc ctcccaacat caaaacatat cacaaaacta cagtaattaa 240
gtccctttga ggccagcact gactgggrta agcaaatagr taaatgggat gtaacaggcc 300
ttatttcaac taataggttg ttcaccactc ctagttggtt ncctgtttcc 350

<210> 188
<211> 375
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (27)
<223> n equals a,t,g, or c

<400> 188
aattcggcac gagtgtaaac acctttnata caaatgccat catcccattt ttactgatta 60
gaaaaacttt gctattaata ggtgcaaagt ccatttcagg tataattggt aaggaactga 120
gtgcactcat gggaagaaac cttgttttgt tttttgttcg cttttcttct tatccccttt 180
tctcagtttt atggctggag acatgattta ttgcagccat ccatcttggg ggctcatcca 240
tcacacccgg gttgctagga gattgtggca gcagctgttt gctctgaatc agacagaaaa 300
gttgtcaatc atcaaaggca ggtgaatagc attagaaaca cgstattgtc agacggaata 360
attaatcaaa gagag 375

<210> 189
<211> 365
<212> DNA
<213> Homo sapiens

<400> 189
tcagacaaaa attctgtgga cagctgcgag gaattcactt ttcctctgaa actcatagcc 60
ctctcctgaa tacatatggt gtgcactaac acttgccatt atctgaaact catagcccta 120
tcctgaatgc atatgctgta ggttaccact tgccattgga ggtcttggag gccatatcct 180
gtaggagcag ggtagccatg ggacttaact actattatcc cccaaaaatg ttgtgtttgt 240
gaattcacct gactgaggaa tccctaawta ttcatcagat atttcaaaag grtccatgtt 300
ccmaagragg rggtttagta ttgatttttg gttgggtttg ttttatttga ggcagtgggg 360
gatga 365

<210> 190
<211> 817
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (778)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (791)

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (801)
<223> n equals a,t,g, or c

<400> 190
ggcacgaggt taattttgaa acttatgctt aagatttaac cagggcagag gcatatttca 60
gcataaataa tgttgccatt ataaactctt atccttccta tctcaacagg aaatgagcaa 120
ttattgcttc atgcttcaat gcactgtttt aaaatactgt ttaatttgtt aaaggtgtga 180
actgtttaat ttatctcaca cgttttttta aacaaatact gattggacat gcgctgcacg 240
ccaggctttg ggcttggtac ctcagggttc tcacagggga ggctggaagt ggaaacaagc 300
acatgtgtaa ctgttgtgta gacagtctaa ttggtagaaa atcagcgaac aaagaagcag 360
acaaattaga aaatgaacgt aaggtgatgt gctaaaaaga gggtagccat tatgtcagtg 420
tccttcagag aaggtagcac tccctgagac cggaatggca gaaagaagtc catcctgcct 480
agcccagctt ggacttgtgg agaagcaggc tgataaaaga accaaatatt gtacattttg 540
aagaagttgc ccgctgactt gagagagagg tgttgcgttt caggtgctga atgtccttat 600
aaaaagttga atatttcgag catctctatc aatacatttg aatgctgaga gcttttcctt 660
ccagaagctc atgtcatttt caacacacac ttctatttac ctttatgtag tttctaaaaa 720
ttgaaaacca gaattggagg ttttttaaa aaaaaaaaaa aaaaaagccg aggkgggnaa 780
agtamaaatg ngcctkwgcc ntttcctttc cccgtcc 817

<210> 191
<211> 590
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (569)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (573)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (577)
<223> n equals a,t,g, or c

<400> 191
aattagaaag tccaaagtcg acccaaatgg atattatggg cagaagtatg gtagagcaat 60
ccaaacaatt gggattatga atgggaaggt tgtaaacccc atattatttg cgtgtacgaa 120
ggaagaatcc tgtgacaagc acttactcca aaatgagtct acagttatac caagtggata 180
gtagaactta tctactggat ttccgtagta ttgatgatga aattacagaa gccaaatcag 240
ggactgctac tccacagaga tcgggatcag ttagcaacta tcgatcttgc caaaggagtg 300
attcagatgc tgaggctcaa ggaaaatcct cagaagtttc tcttacctca tctgtgacct 360
cacttgactc ttctcctgtt gacctaactc caagacctgg aagtcacaca atagaatttt 420

ttgagatgtg tgcaaatcta attaaaattc ttgcacaata aacagaaaac tttgcttatt 480
tcttttgcag caataagcat gcataataag tcacagccca atgcttccca ttgtaatcca 540
agttatacct aatttttaac cgggggttng ggntttngga ttgcaatttg 590

<210> 192
<211> 308
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (285)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (302)
<223> n equals a,t,g, or c

<400> 192
ggcacgagaa ataaccagct gacagcatga cgacaggata aaatccacac ataccattac 60
taaccttaaa tgaaaatggg ctaaatgctc ccattgaaag acacggggca agctggataa 120
agaaccaaga cccactggag tatgctgtct tcaagaaacc catctcacat gcggtggcat 180
acataggctc aaaataaagg aatggagaaa aatatttcaa gcaaatggaa aacagaaaaa 240
agcaggtgtt gcactcctac tttctgacaa aacagrctwt gcggnttaaa ggtkaaaaaa 300
gnggaagg 308

<210> 193
<211> 343
<212> DNA
<213> Homo sapiens

<400> 193
aattcggcac gaggcctgga gaacctatgg tgatttttcct gggcctgctc attgcccacc 60
attgaaccaa tcagcacaca tgtcctctct tctgagccca taaaaaccct ggactcagcc 120
agactcacac agacatcagg actaccagct gcgggaagga gctagccatc tcaggtctcc 180
ttgaatcatc cagatgacct gcctgtggaa aggagctacc catcacaggt ctacttcctg 240
atgagaactg gacattcttg ggatgacttg cctgcagaaa ggagcgacat atttgggtc 300
tyctgagagc tgttctgttg ctcaatgaag ttccttcatg cag 343

<210> 194
<211> 690
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (59)
<223> n equals a,t,g, or c

<400> 194

aattcggcac gagaggtgat atacatgata cattctcaag agttgcttga ccgaaagtna 60
caaggacccc aacccctttg tcctctctac ccacagatgg ccctgggaat caattcctca 120
ggaattgccc tcaagaactc tgcttcttgc tttgcagagt gccatggtca tgtcattctg 180
aggtcacata acacataaaa ttagtttcta tgagtgtata ccatttaaag aatttttttt 240
tcagtaaaag ggaatattac aatgttggag gagagataag ttatagggag ctggatttca 300
aaacgtggtc caagattcaa aaatcctatt gatagtggcc attttaatca ttgccatcgt 360
gtgcttgttt catccagtgt tatgcacttt ccacagttgg acatggtgtt agtatagcca 420
gacgggtttc attattattt ctctttgctt tctcaatgtt aatttattgc atggtttatt 480
ctttttcttt acagctgaaa ttgctttaaa tgatggttaa aattacaaat taaattgtta 540
atttttatca atgtgattgt aattaaaaat attttgattt aaataacaaa aataatacca 600
gattttaagc cgtggaaaat gttcttgatc atttgcagtt aaggacttta aataaatcaa 660
atgttaacaa aaaaaaaaaa aaaagtcgac 690

<210> 195
<211> 237
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (222)
<223> n equals a,t,g, or c

<400> 195
tggaatctgg ctagaaagca gtaataaaca gaaatctgta tatgtttgga aaaagtaaat 60
ctcaatggaa atcagaaaat attttgaact gaaatttggt gatgaaaata ctatatatgg 120
aaacttgtgg gatatattat agctaaagct gtgttagagg aaatttagag ccttacataa 180
atacatatat tataaaaggg aaaatattaa aagttaatgg anctaaggca tccatct 237

<210> 196
<211> 267
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (46)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (261)
<223> n equals a,t,g, or c

<400> 196
cccgagagta gacacatctt agtatgtact cagctttggg caaaanatag atggcgtcac 60
ctttcttcgc atgctgagct ccatagtaga ttgaggactt gggttggaag cagtaaggta 120
attgccaaag ccccattatc aggtgggtac acatagagct tttgggagga acagatgcca 180
taagttatca gtttagtctt accttctctt tagagggaaa agaagttgga gaaagcgtct 240
gcagctaaca aaaggtactg nccttgg 267

<210> 197
<211> 443
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (406)
<223> n equals a,t,g, or c

<400> 197
attgccaatg ataaaatttg aactttcaag caaaaatgca aattttggaa aatgtgttat 60
ttctgccact gagaacataa cagcatacca acacttttag actttttact tttatattgt 120
ataatgaatg catcaacatt tggatgatct gtattacagg tgaaccaaca ttttccagta 180
ttagtggtgg ggaatgaccg tgtcwgaagg cttgaccagg atggggatag ctcaaggagg 240
caggatggct cattgcttat gtcttcttca ggaacacaat gaagtaggtt gagtttccag 300
gatttggccc ctgcattggg gatggttgga ggaaaggcca aaaacctagg ttcttycags 360
ccatgggctt taaaaaacgt ggtacttttt aaggaacagg gttcanggca ggggtgtttt 420
tggggctagg gttaaggaaa atg 443

<210> 198
<211> 208
<212> DNA
<213> Homo sapiens

<400> 198
gaaaatgtgc ctttttcagt tgtcacagmt ggggaatgtt actggcatcc ggtgggtaaa 60
ggctagggat gctgctagac attctacggt gcacaggaca acccccacaa caaagaatta 120
tctagcccaa aatgtcaaca atgctgaggt tgagaagycc taggaaacta aaacagtgtg 180
ggggtttgta atttattgga aaccatgt 208

<210> 199
<211> 258
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (160)
<223> n equals a,t,g, or c

<400> 199
attggttttg gccatgacac tgatttcctg gaggcaaggt gctgcttcya ttcaggaatg 60
ggggtgcatg actgccctga gcagccaagg agccaattct ttaggaggct gagtgccatt 120
tcagctcaag ccttcacggg gcagggccaa aagcaacttn gaggggtggg tggagcatct 180
tccactgcag cttggcccca agaaataggw tgtagcagca gytcagcttg tgggatggtg 240
cgcaacaatt tgggggg 258

<210> 200
<211> 893
<212> DNA

<213> Homo sapiens

<220>
<221> misc feature
<222> (870)
<223> n equals a,t,g, or c

<400> 200
aggggtagtt tccacaatct aatccgggtg ccatcagagt agagggagta gagaatggat 60
gttgggtagg ccatcaataa ggtccattct gggcagtatc tcaactgccg ttcaacaatc 120
gcaagaggaa ggtggagcag gtttcttcat cttacagttg agaaaacaga gactcagaag 180
ggcttcttag ttcatgtttc ccttagcgcc tcagtgattt tttcatggtg gcttaggcca 240
aaagaaatat ctaaccattc aatttataaa taattaggtc cccaacgaat taaatattat 300
gtcctaccaa cttattagct gcttgaaaaa tataatacac ataaataaaa aaatatattt 360
ttcatttcta tttcattgkt aatcacaact acttactaag gagatgtatg cacctattgg 420
acactgtgca acttctcacc tggaatgaga ttggacactg ctgccctcat tttctgctcc 480
atgttggtgt ccatatagta cttgattttt tatcagatgg cctggaaaac ccagtctcac 540
aaaaatatga aattatcaga aggattatag tgcaatctta tgttgaaaga atgaactacc 600
tcactagtag ttcacgtgat gtctgacaga tgttgagttt cattgtgttt gtgtgttcaa 660
atttttaaat attctgagat actcttgtga ggtcactcta atgccctggg tgccttggcc 720
agttttagaa ataccagttg aaaatatttg ctcaggaata tgcaactagg aaggggcaga 780
atcagaattt aagctttcat attctagcct tcagtcttgt tcttcaacca tttttaggaa 840
ctttcccata aggttatgtt ttccmgcccn rggsatgggg ggtcattggg gcc 893

<210> 201
<211> 503
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (480)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (493)
<223> n equals a,t,g, or c

<400> 201
aaactcactg gctgaaggag gaaattttag aaggaagcta ctaaaagatc taatttgaaa 60
aactacaaaa gcattaacta aaaaagttta tttycctttt gtctgggcag tagtgaaaat 120
aactactcac aacattcact atgtttgcaa ggaattaaca caaataaaag atgccttttt 180
acttaaacac caagacagaa aacttgccca atactgagaa gcaacttgca ttagagaggg 240
aactgttaaa tgttttcaac ccagttcatc tggtggatgt ttttgcaggt tactctgaga 300
attttgctta tgaaaaatca ttatttttag tgtagttcac aataatgtat tgaacatact 360
tctaatcaaa ggtgctatgt ccttgtgtat ggtactaaat gtgtcctgtg taccttttgc 420
acaactgaga atcctgcagc ttgggtttaa tgagtggggt catggaataa ttatgggggn 480
atgtaaaaaa aanaaaagag ggg 503

<210> 202

<211> 438
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (344)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (391)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (412)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (425)
<223> n equals a,t,g, or c

<400> 202
catgtgatca tttatgtgta tacagagtaa ttataaaatg tttgctgtgt acaaaactat 60
tttattagtg gattttaaat acattaaatg ggtatatata gtatatatga tctaggagta 120
tatataggga actctaacaa atttataata tttatttttt aaaagaatga ccaaacatgg 180
caaaatatta ctatgagtta gatctggaca gtggatgcaa gggtcttcat tatgttattg 240
tctgattttg tgttgaactt atttcacaat gcagaggaaa aaatagtctt ggctcatcct 300
tagatatcac tgttcataga gccagtcacc aggacgatcc cacnttttat ggtgggccag 360
gcattgggag tccagagccc atcacccaac naccaagtga cgggtgggga cnctggtgag 420
cctgnaaagg gggccatc 438

<210> 203
<211> 876
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (778)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (786)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<222> (804)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (817)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (835)
<223> n equals a,t,g, or c

<400> 203
cggcgatata tactaaattc gcgcgtgact tcatgagtag tagtgaatac aatcttcctg 60
cttctaagct tgtgtctact agaatgtctt ccccctaaaa gatatatttg aatgtttccc 120
atgtttcttc tagtacttta atgcgtttca ttttcataty gaaatcattg atctacttct 180
agtttykgat acaamatgtg agccaggaaa cccagttttt aaatttcaaa tagctgtcca 240
ggtgtccctg cacctcttat gcatgagccc tcgctttgtg ccaatgtgga gtgcccgcct 300
gctcacacgt gcccatgtgg agtgcccgcc tgctcatgtg cccatgtgga gtgcccgcct 360
gctcacacat gycgatgcgg agtgcccrcc tgctcacaca tgcccatgtg gagtgcccgc 420
ctgctcacac gtgcccatgt ggagtgcccg cctgctcaca cacgtgtcca tgtggagtgc 480
ccacctgctc atgtgcccat gtggagtgcc cacctgctca catgtgccga tgtggagtgc 540
crcctgctca cacacgtgcc catgtggagt gcccgcctgc tcacrygtgc cgatgcggag 600
tgcccgcctg ctcacacgtg ccgatgcgga gtgcccgcct gctcacacgt gccgatgcgg 660
agtgcccgcc tgctcacacg tgcccatgcg gagtgcccgc ctgctcacac gtgccgacgc 720
ggagtgcccg cctgctcaca cgtgccgacg cggagtgccc gcctgctcac acgtgccnac 780
gcggantgcc cgcctgctca cacntgccga cgcggantgc ccgcctgctc acacntgccc 840
atgtggagtg ccgcctgctc acgttgccga tgtgga 876

<210> 204
<211> 1504
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (4)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (15)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1468)
<223> n equals a,t,g, or c

<220>

<221> misc feature
<222> (1494)
<223> n equals a,t,g, or c

<400> 204
tgtnytccmt gtgcnacaac cygcygcaga ctggggcccy tctcagttaa ttgggtttca 60
caagcaataa tttctccaca acaaaaacca caacttgaag tgagttgaaa agagatcaat 120
agtggaaaca gtcgcctcag tactttttct ttctggattt catctctaga aatttgaagt 180
gtttgagaca gagtccaccc tttgtgcaag gcgagaacca atgaatggac tccttgtgtg 240
aattattgca tcttcttcca aagcaggttc atcaagactt tcacagagat tcatttttgt 300
tgagaagtaa gggttaatag gaggatagaa tttggatcca aatctagtga taaaagtgtc 360
caagcaatca aaaagtaaga tattttaggg acataccaac atcttccctt tctgctaatt 420
tcatgctcca aagatatrgc aaaaaaaaaa atcataaaaa gtgcttttgc cctacttgtg 480
ttctagtttt cccatggcag aattttgtaa ttacatccag aatatagtgt atattttgtt 540
cctcaaactt tattacattg gatggatatt gttgractgg ggcactggtg cctatattca 600
aggctctttc ctatcaacgt gtctgtccac gatttgttgt gtttaaagct tcattttgaa 660
aaatcactgt ccccctgtgg gtagtgactg tattgttttg ttcatgtcta tgtgggacac 720
attgcatcac atggcaaacc aactctctgt ggatgtgaga taagtactta taaaaccagc 780
ttgaaaacat cgtcttatgt attatgtcat cctgcatcat aatgcaatta tgtgtatcat 840
aacatgctca tttaaaaaaa gagaaaccag caaattcatg tttgtccata gaagaatgta 900
ctcagaactt tgtgttgtga aacgatgaga acagaccacc tttaagatac ccacctgcca 960
cttaaaatga cttagttata attagtagta gtctagacgt tgttcttggt gtgtgggggt 1020
caattctaac gtcatgttct tttgaataaa tctctcagtc atatttgaaa aaaaaataca 1080
tgggaataaa gaaaaatatc atctttggcc aaatcaagca ggcatctttt ttcttttcct 1140
tgacgtttag ctcattatac gtggtgattg gatcacgaga tctgtccgtg tgaaaataca 1200
gaaacatcct ttagtttaca aaacagttat tctaggcttg aagcctctgg aacagcaaat 1260
tgaatagatg ggctgcatct gatttgcttt atggatgtaa ttttacaaaa cactcttggg 1320
tctctgaccc cagggagtta agagtgccca gaggaggtcc tacacattaa aggataaagc 1380
cccccagtga tgctggcagc aaatgtgttg agttcttaaa tcttccattt ggktttctgk 1440
ttcaggtttt taattgcaat ggattttntt tcccccgttt tttcttaagg gccncatttt 1500
ccca 1504

<210> 205
<211> 525
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (47)
<223> n equals a,t,g, or c

<400> 205
agtcttgttc ctaatgcact tgtccacatc gtatgtcatt acaagtnctt ccccttcttt 60
aaccagaggg catagaattg ggcttagtg tgtcctaaac aagctaaaag attccacctg 120
tagaatcata aaatgagagt ctcacacagt ttcatgctac tttttgtctc ttcagcaagg 180
aacggttgct gggattgtca gtgaccaggc atgtctggat agcttcacac atacacataa 240
tgcccggttc acctcagccc acacatgttc tagaagtagc cacttgccaa gtgtcagtgt 300
tcagtctaaa cagcaaatgg gttaaccaca tgaacagcac tggcccatgt gagaatggtg 360
tgaaggcctc ctttgtacca ttttccattt ctctaactca catgtgtagt ctcagcactg 420
cagaggacag atttgtttgt gccctctgag actggttggt tggttggttg gttagttttg 480

ttttatgaat cctaaaattt gtcttggsct gttaaaaaa aaatt 525

<210> 206
<211> 2494
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (2471)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2485)
<223> n equals a,t,g, or c

<400> 206
caaagaaaca ttggaaacaa tttctaatga agaacaaaca cctcttctta aaaagattaa 60
cccaaccgaa tctacttcca aagcagaaga aaatgaaaaa gttgattcaa aagtgaaagc 120
tttcaagaaa ccattgagtg tatttaaagg cccccttacta cacatcagcc cagcagaaga 180
actgtacttt ggaagtacag aatccggaga gaagaaaacc ttaatagtgt tgacaaatgt 240
aactaaaaat atagtggcat ttaaggtgag aacaacagct ccagaaaaat acagagtcaa 300
gccaagcaat agcagctgtg acccgggtgc atcagtggat atagttgtgt ctccccatgg 360
gggtttaaca gtctctgccc aagaccgttt tctgataatg gctgcagaaa tggaacagtc 420
atctggcaca ggcccagcag aattaactca gttttggaaa gaagttccca gaaacaaagt 480
gatggaacat aggttaagat gccatactgt tgaaagcagt aaaccaaaca ctcttacgtt 540
aaaagacaat gctttcaata tgtcagataa aaccagtgaa gatatatgtc tacaactcag 600
tcgtttacta gaaagcaata ggaagcttga agaccaagtt cagcgttgta tctggttcca 660
gcagctgctg ctttccttaa caatgctctt gcttgctttt gtcacctctt tcttctattw 720
attgtacagt taaagaagtg gtgccgggta ggaaccacgg ttccttcgtc cattagttgg 780
aaaagtaaca gacctaaaac tctaccaagc tactaaaamc attgcacatc tgtgcttcct 840
aaaaggaaat atgcagcacg tggaggggaa cacatacatg tcttgaaaat aaactgctag 900
aataaagaaa tgctggagaa attgattata agagactata gctatttagt aaagtaagta 960
aaggcatatc cattgtgtaa attaatagtt taaatataat ttattttttc cttttgatct 1020
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<211> 880
<212> DNA
<213> Homo sapiens

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<222> (864)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (865)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (868)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (878)
<223> n equals a,t,g, or c

<400> 207
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<211> 640
<212> DNA
<213> Homo sapiens

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<222> (2)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (5)
<223> n equals a,t,g, or c

<400> 208
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<210> 209
<211> 303
<212> DNA
<213> Homo sapiens

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<222> (85)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (92)
<223> n equals a,t,g, or c

<400> 209
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tgaggaaagt gaggctcaca gaagttaatt ggcccagggt cccacaacta gtcagtgcag 180
aggtggggra acataaccag atttgttcgg catgkaactt gtgccaaatt tcctccaaag 240
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act 303

<210> 210
<211> 1168
<212> DNA
<213> Homo sapiens

<400> 210
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<210> 211
<211> 3133
<212> DNA
<213> Homo sapiens

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<222> (3069)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (3085)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (3114)
<223> n equals a,t,g, or c

<400> 211
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<210> 212
<211> 680
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (613)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (660)
<223> n equals a,t,g, or c

<400> 212
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<210> 213
<211> 563
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (440)
<223> n equals a,t,g, or c

<400> 213
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<210> 214
<211> 2636
<212> DNA
<213> Homo sapiens

<400> 214
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<210> 215
<211> 1822
<212> DNA
<213> Homo sapiens

<220>
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<222> (1816)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1821)
<223> n equals a,t,g, or c

<400> 215
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tgatttaata ttgttttaca ttaaaatagt ccttttccct gttgtgccac cattcattta 1140
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cataaagtac gccagaagtt tgatggaacg tgttagaaac tgttttgtgc ttttatggat 1620
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acatttgaat tcctttttgga taaagttatt tcttgatgtg acasagtagt gtgttttcat 1740
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ggtggcaaaa aaaacnactg na 1822

<210> 216
<211> 3127

<212> DNA
<213> Homo sapiens

<400> 216
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gcggccactg cagtcacttc gccagttagc ccttagggta ggagtcgcgc cggcagcagc 180
catgagcggc ggcgtgtacg gggagatga agttggagcc cttgtttttg acattggatc 240
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gaatatggag gccatttcac ctctaaaaaa tgggatggtt gaagactggg atagtttcca 480
agctattttg gatcatacct acaaaatgca tgtcaaatca gaagccagtc tccatcctgt 540
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gtttgaacac tacaacatcc ctgccttctt cctttgcaaa actgcagttt tgacagcatt 660
tgctaatggt cgttctactg ggctgatttt ggacagtgga gccactcata ccactgcaat 720
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agccgta 3127

<210> 217
<211> 1529
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (57)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (458)
<223> n equals a,t,g, or c

<400> 217
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gatcgcccag gagcggctca cagtcctcct gttcctggag gactgcatca tcactgcctg 120
ccaggagggc ctcatctgca cctgggmccg gccgggcaag gcgttcacag acgaggagac 180
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catctcctcc caaccaggca actccccgag tggcacagtg gtgtgaagcc atggatatcg 300
ggcccccсca accccatgcc cccagcctcc tagccataac cctccctgct gacctcacag 360
atcaacgtat taacaagact aaccatgatg gatggactgc tccagtcccc ccacctgcac 420
aaaatttggg ggccccccag actggcccgg acacgggnga tgtaatagcc cttgtggcct 480
cagccttgtc ccccacccac tgccaagtac aatgacctct tcctctgaaa catcagtgtt 540
accctcatcc ctgtccccag catgtgactg gtcactcctg ggagagasact ccccgcccct 600
gccacaagag ccccaggtct gcagtgtgcc cctcagttga gtgggcaggg ccgggggtgg 660
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cccttcccca cctcctggga aaaaaaaa 1529

<210> 218

<211> 1100
<212> DNA
<213> Homo sapiens

<400> 218
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ggatcctttc tataccaacg wcmggagcat cttgactctc tccacaatgg actcatctac 120
ttgttaaagg ggcagtagta ctttgtggga gccagttcac ctcctttcct aaaattcagt 180
gtgatcaccc tgttaatggc cacactagct ctgaaattaa tttccaaaat ctttgtagta 240
gttcataccc actcagagtt ataatggcaa acaaacagaa agcattagta caagcccctc 300
ccaacaccct taatttgaat ctgaacatgt taaaatttga gaataaagag acatttttca 360
tctctttgtc tggtttgtcc cttgtgctta tgggactcct aatggcattt cagtctgttg 420
ctgaggccat tatattttaa tataaatgta gaaaaaagag agaaatctta gtaaagagta 480
ttttttagta ttagcttgat tattgactct tctatttaaa tctgmttctg taaattatgc 540
tgaaagtttg ccttgagaac tctatttttt tattagagtt atatttaaag cttttcatgg 600
gaaaagttaa tgtgaatact gaggaatttt ggtccctcag tgacctgtgt tgktaattca 660
ttaatgcatt ctgagttcac agagcaaatt aggagaatca tttccaacca ttatttactg 720
cagtatgggg agtaaattta taccaattcc tctaactgta ctgtaacaca gcctgtaaag 780
ttagccatat aaatgcaagg gtatatcata tatacaaatc aggaatcagg tccgttcacc 840
gaacttcaaa ttgatgttta ctaatatttt tgtgacagag tataaagacc ctatagtggg 900
taaattagrt actattagca tattattaat ttaatgtctt tatcattgga tcttttgcat 960
gctttaatct ggttaacata tttaaatttg ctttttttct ctttacctga aggctctgtg 1020
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aaaaaaaaaa aaaaaaactc 1100

<210> 219
<211> 1792
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (475)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (476)
<223> n equals a,t,g, or c

<400> 219
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ggcggcgsgg accgcmtggg cgggaccggc gggccgcgcc tggtgatcgg ctccttacca 180
gctcacctct cgccgcacat gtttggagga tttaagtgcc ctgtatgctc aaaatttgta 240
tcctcagatg aaatggattt gcatcttgta atgtgtttaa caaagccacg aataacctat 300
aatgaggatg tactgagtaa agatgctggg gaatgtgcaa tatgccttga agaattgcag 360
cagggagata ctatagcacg actgccttgt ctatgcatat atcataaagg ctgcatagat 420
gaatggtttg aagtaaatag atcttgccct gagcaccctt cagattaagc gtcannttcc 480
tgttttatag gtttcttgt cttgacaaga tgcttgaaaa accaagagga yatgaaaatc 540
tgtctctgga gaaacaaaga cgcaggcata ctcagccaga aatctgagtt ttgtgagact 600

tggtaataca gagatggaca atcgtactgg ggtaaaaaaa ccctgctgaa gagaggacag 660
tgaccacaga actcagtgta ccaaacatgc atacaaagga cacacaggga ttttgaaaat 720
gctgcacatc ccttaatagt catctacata ggtaatactg ataaacattt tgtattcaga 780
cgccaaagtt aactgattta aaagttgatt tacttttat taagttctcc agagctgcac 840
aactagttat gttttgattt gttttgtttt ttaatttggg gtctctttgt tttccccaac 900
ataatgttca taatgtttct gcattcatct gttcttaaat tgaaaaacat ataatttact 960
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gattttatat acctttaaaa actgtaattt aattgggatg ccaggtttat agcaatttgc 1560
aactttaatt ttccagataa tctggaggtt agcatttgat aaatgatttt ttaaagtaga 1620
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tagacacttt taaattcagt ttgtgtagaa agaaatgtgt taaacaaaat tatgttaata 1740
aatattcccm cataataaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aa 1792

<210> 220
<211> 1310
<212> DNA
<213> Homo sapiens

<400> 220
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ccccggcagc gccyagcgkc ggctgcggaa agcggaggga gtccgacgcg ggcgcgggcg 180
gggagcgtgc gtccgttcgc acaggcagcg ggaggagggg cggcgcgaac catggccggg 240
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ggcgtcacgg gggaacagct agcggcaagt cttccgtgtg tgctaagatc gtgcagctcc 360
tggggcagaa tgaggtggac tatcgccaga agcaggtggt catcctgagc caggatagct 420
tctaccgtgt ccttacctcg gagcagaagg ccaaagccct gaaggsccag ttcaactttg 480
accacccgga tgcctttgac aatgarstca ttctcaaaac actcaaagaa atcactgaag 540
ggaaaacagt ccagatcccc gtgtatgact ttgtctccca ttccccggaag gaggagacag 600
ttactgtcta tcccgcagac gtggtgctct ttgaagggat cctggccttc tactcccagg 660
aggtacgaga cctgttccag atgaagcttt ttgtggatac agatgcggac acccggctct 720
cacgcagagt attaagggac atcagcgaga gaggcaggga tcttgagcag attttatctc 780
agtacattac gttcgtcaag cctgcctttg aggaattctg cttgccaaca aagaagtatg 840
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ccctgagctt aaataacaaa actgtgccaa ctactactgg tgatgcctaa ttatgaatcc 1260
aacgtgtaac cagttataaa tacatatata tataaaaaag gaaaaaaaa 1310

<210> 221

<211> 1369
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1347)
<223> n equals a,t,g, or c

<400> 221
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agcacagttt ggaacaacag cagagatata tgcctatcga gaagaacagg attttggaat 120
tgagatagtg aargtgaaag caattggaag acaaaggttc aaagtccttg agctaagaac 180
acagtcagat ggaatccagc aagctaaagt gcaaattctt cccgaatgtg tgttgccttc 240
aaccatgtct gcagttcaat tagaatccct caataagtgc cagatatttc cttcaaaacc 300
tgtctcaaga gaagaccaat gttcatataa atggtggcag aaataccaga agagaaagtt 360
tcattgtgca aatctaactt catggcctcg ctggctgtat tccttatatg atgctgagac 420
cttaatggac agaatcaaga aacagctacg tgaatgggat gaaaatctaa aagatgattc 480
tcttccttca aatccaatag attttctta cagagtagct gcttgtcttc ctattgatga 540
tgtattgaga attcagctcc ttaaaattgg cagtgctatc cagcgacttc gctgtgaatt 600
agacattatg aataaatgta cttccctttg ctgtaaacaa tgtcaagaaa cagaaataac 660
aaccaaaaat gaaatattca gtttatcctt atgtgggccg atggcagctt atgtgaatcc 720
tcatggatat gtgcatgaga cacttactgt gtataaggct tgcaacttga atctgatagg 780
ccggccttct acagaacaca gctggtttcc tgggtatgcc tggactgttg cccagtgtaa 840
gatctgtgca agccatattg gatggaagtt tacggccacc aaaaaagaca tgtcacctca 900
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tctggtagca tgtcattgat gggacatgaa gacatctttg gaaatgatga gattatttcc 1320
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<210> 222
<211> 792
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (573)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (585)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<222> (599)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (636)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (699)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (772)
<223> n equals a,t,g, or c

<400> 222
tgcgagaaga cgacagaagg ggagagactt gagggaggcg ctgcgactga caagcggctc 60
tgcccgggac cttctcgctt tcatctagcg ctgcactcaa tggaggggcg ggcaccgcag 120
tgcttaatgc tgtcttaact agtgtaggaa aacggctcaa cccaccgctg ccgaaatgaa 180
gtataagaat cttatggcaa gggccttata tgacaatgtc ccagagtgtg ccgaggaact 240
ggcctttcgc aagggagaca tcctgaccgt catagagcag aacacagggg gactggaagg 300
atggtggctg tgctcattac acggtcggca aggcattgtc ccaggcaacc gggtgaagct 360
tctgattggt cccatgcagg agactgcctc cagtcacgag cagcctgcct ctggactgat 420
gcagcagacc tttggccaac agaagctcta tcaagtgcca aaccccacag gcttgcttcc 480
cccgagacac ccattcttac ccaaggtgcc caccctttcc cttacccaaa aaatcaaggg 540
ggaaattttt acccaaaggt tcccccaact ttnggcccaa cgggnaaccc ccaaaggana 600
caaaggaggg gtattattca gggttgcccc acccanttaa ggttgcaagg aggaaaggca 660
ttttgggggg ggaacccagg tttggggccc ccaacgttng ggtataaaaa agggttgttt 720
ccaggaggag gattgggcaa agttgttcct attttctttg gttaggagcc tntttaacaa 780
aacccagctt gt 792

<210> 223
<211> 921
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (851)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (885)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<222> (895)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (911)
<223> n equals a,t,g, or c

<400> 223
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gccaggaaac gtgtgggcct ctctgctgcg gtctccgagg gccgaccgct gccggcggcg 180
ggtcgtgggg gctgactgtc gctctgcctt tgacaggaga ggctgcttct tgtagaggaa 240
acagctttga agtgtggagc gggaaaggag cagtttctga gctgcaaaaa ctagtttcta 300
aacagagagt taattgttaa atccagtatg gccacaggag gaggtccctt tgaagatggc 360
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tttggtgtag aaagtgataa aagagtaacc aatgatattt ctccggagtc gtcaccagga 540
gttggaaggc gaagaacaaa gactccacat acgttcccac acagtagata catgagtcag 600
atgtctgtcc cagagcaggc agaattagag aaactgaaac agcggataaa cttcagtgat 660
ttagatcaga gaagcattgg aagtgattcc caaggtagag caacagctgc taacaacaaa 720
cgtcagctta gtgaaaaccg aaagcccttc aactttttgc ctatgcagat taatactaac 780
aaggagcaaa ggtgcatttt acaagtcccc caaacagagg aaacggttgg gttcagcaca 840
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<210> 224
<211> 1979
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1949)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1953)
<223> n equals a,t,g, or c

<400> 224
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ggcagaggca gagcccggtg ccgagaccaa gcgacagacc ggcggggctg ggcctcgcaa 120
agccggctcg gcgagctctc ccgacacccg agccggggag gaaaagcagc gactcctcgc 180
tcgcatcccc gggagccgca ctccagactg gcccggtagt caggggctca ggagcagatc 240
ccgaggcagg ctttgctcag cctccgacga gggctggccc tttggaaggc gccttcaaca 300
gccggaccag acaggccacc atgaccgaga attccacgtc cgcccctgcg gccaagccca 360
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ctgccatcca ggccgagaag aaccgcgctg gctcctcgcg ccagtccatt cagaagtata 480
tcaagagcca ctacaaggtg ggtgagaacg ctgactcgca gatcaagttg tccatcaagc 540

gcctggtcac caccggtgtc ctcaagcaga ccaaaggggt gggggcctcg gggtccttcc 600
ggctagccaa gagcgacgaa cccaagaagt cagtggcctt caagaagacc aagaaggaaa 660
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ataaattgga aaagggaraa aaaaaaagna aanaaaaaaa aaaaaaaaaa aaaaaaaaa 1979

<210> 225
<211> 541
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (506)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (511)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (532)
<223> n equals a,t,g, or c

<400> 225
tcgacccacg cgtccgccca cgcgtccggg aaacaggaga tcgtggatcc tccttcaaaa 60
atggaggatg gaaagcccgt ttgggcgcca caccctacag atggatttca gatgggcaat 120
attgtggata ttggccccga cagcttaaca attgaaccct tgaatcagaa aggcaagaca 180
tttttggctc tcataaacca agtgtttcct gcagaagagg acagtaaaaa agatgtggaa 240
gataactgtt cactaatgta tttaaatgaa gccacactgc tccataatat caaagttcga 300

tatagtaaag acagaattta tacatatgtc gccaacattc tgwttgcagt gaatccatac 360
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acaagaccac ctccaggtct ttgcaattgc tgataagcct ttcgggacct ggaaggtgcc 480
ccaagatgag tcagtctaac catggnatcc nggagaatcc aggggccggg gnaaaccagg 540
a 541

<210> 226
<211> 277
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (135)
<223> n equals a,t,g, or c

<400> 226
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aattctgtgg agcggcttcg gcggctccga ggagaagcaa tatgttaagg atacctctaa 120
gaagggcctt agtangcctt tctaataagt cttccaaagg atgtgttcga acaactgcca 180
cagcagcaag caacttratt gaagtatttg ttgatggtca rtctgtcatg gtggaaccrg 240
gaackacygt cctccaagct tgtgagaagg ttggcat 277

<210> 227
<211> 2069
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (2026)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2042)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2050)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2061)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2062)

<223> n equals a,t,g, or c

<400> 227
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aagcagcgga atacaagaga ctgaactgta tctgcctcta tttccaaaag actcacgttc 120
aactttcgct cacacaaagc cgggaaaatt ttattagtcc ttttttaaa aaaagttaat 180
ataaaattat agcaaaaaaa aaaaggaacc tgaactttag taacacagct ggaacaatcc 240
gcagcggcgg cggcagcggc gggagaagag gtttaattta gttgattttc tgtggttgtt 300
ggttgttcgc tagtctcacg gtgatggaag ctgcacattt tttcgaaggg accgagaagc 360
tgctggaggt ttggttctcc cggcagcagc ccgacgcaaa ccaaggatct ggggatcttc 420
gcactatccc aagatctgag tgggacatac ttttgaagga tgtgcaatgt tcaatcataa 480
gtgtgacaaa aactgacaag caggaagctt atgtactcag tgagagtagc atgtttgtct 540
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catatttgct attttaacat tattggaccc tgcatttata gtcctttgat ttcttccctc 1980
tccctggtgt ctcccccaag accccaaata aagcaataca ctgttnaaca aaaaaaaaaa 2040
angggggggcn gccctagggg nnccaagct 2069

<210> 228
<211> 471
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (287)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<222> (372)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (418)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (462)
<223> n equals a,t,g, or c

<400> 228
ttccagtcag cggctgcagg gtcgggctcg cgccgtcctc tccccgcccg cgccgkattc 60
taatgtagga actggtgaga agaaggtgac tgaagcctgg atttctgagg atgaaaactc 120
acataggacg acgtcagaca gactcacggt gatggagctc ccctctcccg agtctgagga 180
agtccacgag cccagattag gggagctctt gggaaatcca gaaggtcaga gcctggggag 240
ttccccctct caggacaggg gctgcaacag gtgacagtga cccattngaa gatccagaca 300
ggagagacag ctcaagtgtg caccaagtca ggaagaaacc atattctgaa atcagacttc 360
ttctggcttc anagagagct ccttagaagg gggaagccat tccttgcgat atcctgtngg 420
gaaaccttca cgtttaattc ggacctaaat aaggcatcgg antttcgcat c 471

<210> 229
<211> 1640
<212> DNA
<213> Homo sapiens

<400> 229
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cttctcttac ctcccgggtc tgtmaccgct ggaagaggct ggtggacgac cggtggctgt 120
ggcgacatgt cgacctgacg ctctacacga tggcgaccta aagtcatgtg gcacctcctt 180
cgaaggtaca tggcatcccg gctccattcc ctgcggatgg gtggctacct gttctctggc 240
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ctgaagcgcc tctgcctgca cgtggccgac ctgagcatgg tgcccatcac cagcctgccc 360
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aaaaaaaaaa aaaaaaaaaa 1640

<210> 230
<211> 1970
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (2)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (4)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1952)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1963)
<223> n equals a,t,g, or c

<400> 230
cngncccgag cccagagcgc cggcggcccg actcccggcc gccccttctc ttctcctcgc 60
cggccccgaga gcaggaacac gataacgaag gaggcccaac ttcattcaat aaggagcctg 120
acggatttat cccagacggt agaacaaaag gaagaatatt gatggatttt aaaccagagt 180
ttttaaagag cttgagaata cggggaaatt aatttgttct cctacacaca tagatagggt 240
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tgatgccagt agcaatgtgg acaagatgat ggtccttaat tctgctttaa cggaagtgtc 360
agaagactcc acaacaggtg aggagctgct tctcagtgaa ggaagtgtgg ggaagaacaa 420
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<210> 231
<211> 310
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (262)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (298)
<223> n equals a,t,g, or c

<400> 231
gcgagactcc gtctcaaaac aaaacaaata aaaaaaacaa acagtatttt ttaggaattc 60
atttatttt aaattttgta aggaggagtt acaaaaagac aaatactaca tatgattcca 120
cttgtcatac ctagagtcaa attcatggag acagaaagta gaaaggtggt taccagcggc 180
tgggaaggag agaatgtgga gtttaatggg tatagaattt tagttttgta aggtgaaatg 240
agttctggag attggttgca cnaacagtgt gaatatactc aacactactg aactgtanac 300
ttaaaatgat 310

<210> 232
<211> 2833
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1399)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<222> (2828)
<223> n equals a,t,g, or c

<400> 232
ggcagaggcc agggccaagg ccgaggcggc agggctgcga gaggcggcgg cacgacgacg 60
gtccctcagc ccagccacca tgagcaccaa gcagatcact tgcaggtatt ttatgcatgg 120
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<210> 233
<211> 692
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (289)
<223> n equals a,t,g, or c

<400> 233
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aatttgacac acttgcagaa acagtattgg ctgatcggtt tgagagattg gtggaactgg 180
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cttgaggaaa accagcggaa cctccttcag atgactgaaa agttcttcca tgccatcatc 600
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<210> 234
<211> 1353
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (649)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1020)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1255)
<223> n equals a,t,g, or c

<400> 234
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<210> 235
<211> 346
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (151)
<223> n equals a,t,g, or c

<400> 235
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gtccagctct ggggaagacc gagacgaaat cgagtcagct ggcgttggga gagggcttat 240
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<210> 236
<211> 2271
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (547)
<223> n equals a,t,g, or c

<400> 236
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acagtgatgg aaagactcac ctggacaaac cctactgtgc cccccagaaa gaatgcttcg 120

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gggggattgt gggagccaaa agtccctacg ttgatgacat gggagcaata ggtgatgagg 180
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<210> 237
<211> 3050
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (492)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (3024)
<223> n equals a,t,g, or c
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<220>
<221> misc feature
<222> (3031)
<223> n equals a,t,g, or c

<400> 237
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<210> 238
<211> 2802
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (613)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1800)
<223> n equals a,t,g, or c

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<211> 1537
<212> DNA
<213> Homo sapiens

<400> 239
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<210> 240
<211> 1334
<212> DNA
<213> Homo sapiens

<400> 240
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gaggcatgtc tcaagaagca gtgggaaata taaaagttac aaagtctccc cagaaatcca 360
ctgtattaag caatggagaa gcagcaatgc agtcttccaa ttcagaatca aaaaagaaaa 420
agaagaaaaa gagaaaaatg gtgaatgatg ctgagcctga tacgaaaaaa gcaaaaactg 480
aaaacaaagg gaaatctgaa gaagaaagtg ccgagactac taaagaaaca gaaaataatg 540
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caggagcttt tgaggatact tcgtttgctt ctctatgtaa tcttgtcaat gaaaacactc 660
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ctgaaaaaga ggtt 1334

<210> 241
<211> 2438
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (71)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (879)
<223> n equals a,t,g, or c

<400> 241
ggtgcagttc caacagtaac agcgaaaatc atcgggtgat gcaagtactc aaacagatgc 60
cctgaaactg ncaccttcca accttcaagg cttttgaaga acaaagcttt attatgcaaa 120

cccatcacac agactaaagc cacctcttgc aaaccacata cccaaaacaa agaatgccag 180
acagaagaca ctccaagtca gcccagatta ttgkggkgcc agttccgtac cagkgttkgt 240
cccatacctc ttacctttat actcaatatg ctccagtccc atttggaatt ccagktccaa 300
tgcctgkccc tatgcttatt ccatcttcaa tggatagtga agataaagtc acagagagta 360
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cagaaatgat tgcagaagat gaagagaaga agactctatc tcagggagag tcccaaactt 480
ctgaacacga actctttcta gacaccaaga tatttgaaaa araccaagga agtacataca 540
gtggtgatct tgaatcagag gcagtatcta ctccacatag ctgggaggaa gagctgaatc 600
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aaggggaaac tgaacggacc tggaagcaga ttttccatca gactcctttg acccacttaa 720
taaaggacgg gaatccaggc acgttcccga acagacgacg acacagagat ggcttccccc 780
aacccagacg aagaggacgg aagaagtcta tagtggctgt ggagcccagg agtcttattc 840
aaggagcctt tcaaggctgc tcagtgtccg ggatgacant gaaatacatg tatggggtaa 900
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gtggtgcata atcttatttt gtttgggagt aacaaatcgt ggaatatttt taaggaaaac 2220
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tactcaactt tttaaaaaaa aaaaaaaaaa aaaaaaat 2438

<210> 242
<211> 139
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (137)
<223> n equals a,t,g, or c

<400> 242

aagaccggag cttgtccgga agattkcaaa tactgcccgc aaagctcgcg ctacaaaacc 60
gggttggarc cagwcggttg atggaagttg aacaggtgct ggagtcggcg cgcaaagcaa 120
tagggactag ggatcgncg 139

<210> 243
<211> 479
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (462)
<223> n equals a,t,g, or c

<400> 243
gctcgtgccg aattcggcac gaggcagttt ttgaaagttt gaaattaagt aaaaattaaa 60
agtcacaaaa gattttgcat gtcaagattc tagccttttt cttctggtgt actgagaggc 120
cagaggagcc cattctaggg actaagtatt gacagaattt ggttctgtgg caagaattac 180
ctggtgtcct agcactaagg accagtaggt cagagccctt gacttagatt tcaggacaag 240
aaacagaaag attggaatag gattgraatg gagtctcccc gtgattttaa aaaacactta 300
statggggcc asgcgcrckg tggctcaacg cctgtaatcc cagcactttg ggaggccaag 360
atgggtggat catgaggtca ggagatcgag accgtcctgg ctaacatggt gaaaccccgg 420
ctctactaaa aatataaaaa aattaacccg gccgtggtgg cngggcgcct gtagtccca 479

<210> 244
<211> 584
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (582)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (583)
<223> n equals a,t,g, or c

<400> 244
tgggatatct ccggagcatt trgataatgt gacagttgga atgcagtgat gtcgactctt 60
tgcccaccgc catctccagc tgttgccaag acagagattg ctttaagtgg caaatcacct 120
ttattagcag ctacttttgc ttactgggac aatattcttg gtcctagagt aaggcacatt 180
tgggctccaa agacagaaca ggtacttctc agtgatggag aaataacttt tcttgccaac 240
cacactctaa atggagaaat ccttcgaaat gcagagagtg gtgctataga tgtaaagttt 300
tttgtcttgt ctgaaaaggg agtgattatt gtttcattaa tctttgatgg aaactggaat 360
ggggatcgca gcacatatgg actatcaatt atacttccac agacagaact tagtttctac 420
ctcccacttc atagagtgtg tgttgataga ttaacacata taatccggaa aggaagaata 480
tggatgcata aggaaagacm agaaatgtcc agaagattat cttagaaggc acagagagaa 540
tggaagatca ggtcagagta ttattccaat gcttactgga gnng 584

<210> 245
<211> 332
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (235)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (272)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (288)
<223> n equals a,t,g, or c

<400> 245
ggcacagcgt tcacccgaca gtgttcacag ggcccatggt acagagcacg gagcagggtc 60
ccccaggttg tgcgcttgcc agggccacat cttgagcctt cgctctgctc cttcgagagc 120
cgctgctgcc ccaccccaat ccccaaccag ccacccccctc ctgcctccct gccatctgtc 180
cctttcatcc tccctggcgt gccaagcgcc tgccatggca ccgcctgtta cctancccag 240
ctacaaatgc cagccttgaa tctgccctgg antcccttcc tctaccangt aaacagcctt 300
aactcagccc tgccactccc tgctctgaag ct 332

<210> 246
<211> 1617
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (215)
<223> n equals a,t,g, or c

<400> 246
cccgagatcc ctttcccaga gtgctctgcg ccgwgaagaa gcggctcccg gggactkggg 60
gcattttgtg ttggctggag ctggagtaac aagatggcgt cgtccgcgga gtgacagggg 120
tccctctggg ccggagccgg cggcagtggt ggcagcggta tcgccgccct agctcaccgc 180
gcccctttc cagcccgcga cgtcgccgcg caagnaggca gcggcggccg ccgagaaaca 240
agtggcccag cctggtaacc gccgagaagc ccttcacaaa ctgcggcctg gcaaaaagaa 300
acctgactga gcggcggtga tcaggttccc ctctgctgat tctgggcccc gaaccccggt 360
aaaggcctcc gtgttccgtt tcctgccgcc ctcctccgta gccttgccta gtgtaggagc 420
cccgaggcct ccgtcctctt cccagaggtg tcggggcttg gccagcctcc atcttcgtct 480
ctcaggatgg cgagtagcag cggctccaag gctgaattca ttgtcggagg gaaatataaa 540
ctggtacgga agatcgggtc tggctccttc ggggacatct atttggcgat caacatcacc 600
aacggcgagg aagtggcagt gaagctagaa tctcagaagg ccaggcatcc ccagttgctg 660
tacgagagca agctctataa gattcttcaa ggtggggttg gcatccccca catacggtgg 720

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tatggtcagg aaaaagacta caatgtacta gtcatggatc ttctgggacc tagcctcgaa 780
gacctcttca atttctgttc aagaaggttc acaatgaaaa ctgtacttat gttagctgac 840
cagatgatca gtagaattga atatgtgcat acaaagaatt ttatacacag agacattaaa 900
ccagataact tcctaatggg tattgggcgt cactgtaata agttattcct tattgatttt 960
ggtttggcca aaaagtacag agacaacagg acaaggcaac acataccata cagagaagat 1020
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agtcgccgag atgacatgga atcattagga tatgttttga tgtattttaa tagaaccagc 1140
ctgccatggc aagggctaaa ggctgcaaca aagaaacaaa aatatgaaaa gattagtgaa 1200
aagaagatgt ccacgcctgt tgaagtttta tgtaaggggt ttcctgcaga atttgcgatg 1260
tacttaaact attgtcgtgg gctacgcttt gaggaagccc cagattacat gtatctgagg 1320
cagctattcc gcattctttt caggaccctg aaccatcaat atgactacac atttgattgg 1380
gacaatgtta aagcagaaag cagcacagca ggcagcctct tccagtgggc agggtcagca 1440
ggcccaaacc cccacaggca agcaaactga cmaaaccaag agtaacatga aaggttagta 1500
rccaagaacc aagtgacgtt acagggaaaa aattgaatmc aaaattgggt aattcatttc 1560
taacagkgtt agatcaagga ggkggtttta aaatacataa aaatttggct ctgcgtt    1617
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<210> 247
<211> 1449
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1447)
<223> n equals a,t,g, or c

<400> 247

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cgcggggctg gtagcggccg gagccgtgcg akttctctac cctgcttcgc gagcgggcga 60
gagaacgcga gtcccaggat ccccggcacc casttctctt ccactgcatt cccccggcgc 120
gtgtgggacc gaggtggaca tggatccgca gaggtccccc ctattggaag taaaggggaa 180
catagaactg aagagacctc tgattaaggc cccttcccag ctgcctctct caggaagcag 240
actcaagagg aggcctgacc agatggaaga tggcctggag cctgagaaga aacggacaag 300
aggcctgggt gcaasgacca aaattaccac atcccaccca agagttccat ccctcactac 360
agtgccacag acacaaggcc agaccacagc tcaaaaagtt tccaagaaga caggaccccg 420
gtgttccaca gctattgcca cagggttgaa gaaccagaag ccagttcctg ctgttcctgt 480
ccagaagtct ggcacatcag gtgttcctcc catggcagga gggaagaaac ccagcaaacg 540
tccagcctgg gacttaaagg gtcagttatg tgacctaaat gcagaactaa aacggtgccg 600
tgagaggact caaacgttgg accaagagaa ccagcagctt caggaccagc tcagagatgc 660
ccagcagcag gtcaaggccc tggggacaga gcgcacaaca ctggaggggc atttagccaa 720
ggtacaggcc caggctgagc agggccaaca ggagctgaag aacttgcgtg cttgtktcct 780
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ggtggaattg caggaagaac ggaggggact gatgtcccaa ctagaggaga aggagaggag 900
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ctgccgggtc cgccctgtcc tgccggggga gcccactcca ccccctggcc tcctcctgtt 1140
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tggcaagacc ttcacaatgg agggtgggct gggggagacc ccarttggaa gggctgatcc 1440
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ctcgggncc 1449

<210> 248
<211> 1484
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (37)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1477)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1478)
<223> n equals a,t,g, or c

<400> 248
ccacgcgtcc gcggacgctg gacggacgcg tgggtcnggt taggaggagc taggctgcca 60
tcgggccggt gcagatacgg ggttgctctt ttgctcataa gaggggcttc gctggcagtc 120
tgaacggcaa gcttgagcaa cgcggtaaaa atattgcttc ggtgggtgac gcggtacagc 180
tgcccaaggg cgttcgtaac gggaatgccg aagcgtggga aaaagggagc ggtggcggaa 240
gacggggatg agctcaggac agagccagag gccaagaaga gtaagacggc cgcaaagaaa 300
aatgacaaag aggcagcagg agagggccca gccctgtatg aggacccccc agatcagaaa 360
acctcaccca gtggcaaacc tgccacactc aagatctgct cttggaatgt ggatgggctt 420
cgagcctgga ttaagaagaa aggattagat tgggtaaagg aagaagcccc agatatactg 480
tgccttcaag agaccaaatg ttcagagaac aaactaccag ctgaacttca ggagctgcct 540
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gtttgaatta tccacatgaa aataaagagc catagtttca aaaaaaaaaa aaaaaaaaaa 1440
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaanngg gggg 1484

<210> 249
<211> 2422

<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (2354)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2408)
<223> n equals a,t,g, or c

<400> 249
ggtcttgaat aaactactat accaggaggc acattttctc gctcaagcat cttacattga 60
ccttctttaa aacaaaaata cgtacaaggc ccacgcgtcc gcggacgcgt ggggagtctt 120
tctaatcttc cttttctaca gacccatctg acctctccct tcctccccag gctgctcctt 180
gccaggccga gctaggtccc aattcttcct cagcctctgc tcctccaccc tataatcttt 240
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tcccgacatt aaataaaact ccaaaaatta rawtcyggcc ctcaaacccc acaacaggay 600
ttaattaacc tcrccttcaa ggtgtacaat aatagaaaaa agttgcaatt ccttgcctcc 660
actgtgagac aaaccccagc cacatctcca gcacacaaga acttccaaac gcctgaacyg 720
cagcrgccag gcgttcctcc agaacctcct cccacaggag cttgctacac gtgccggaaa 780
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<210> 250
<211> 574
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (8)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (38)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (44)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (77)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (558)
<223> n equals a,t,g, or c

<400> 250
ttttatgnca aaaaacgcaa cccacgcatg aaaaatgngc caantctttc cttggaatgg 60
tctgtatttg ggtgaantcc atccagacgt caattaacac ttcctttatt ttggggttgc 120
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<210> 251
<211> 1044
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1010)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1011)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1012)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1013)
<223> n equals a,t,g, or c

<400> 251
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aaaatgtggc caagacagct aacaaggacc acttggttac agcctataac catctttttg 240
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caccaaaata tactaaatct gttctgaaaa agggagataa aaccaacttt cccaaaaagg 420
gagatgttgt tcactgctgg tatacaggaa cactacaaga tgggactgtt tttgatacta 480
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aaaaaaaaaa aaaaaaaaaa aaaa 1044

<210> 252
<211> 1029
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (835)
<223> n equals a,t,g, or c

<400> 252
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atctagaac 1029

<210> 253
<211> 475
<212> DNA
<213> Homo sapiens

<400> 253
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ttataaaagt agtacatagt ctttgtggaa aatttattaa gtacagtaag tgcagaagaa 180
gaaataaatc actcataatc ccagcagaca gaattaatca ctgtcatttt aggtgtattt 240
ttttgcagag taaaacatgt aaacatttta catagacata aatacaaaca tgataagcat 300
tggacatgga aaatgggcag taaattctgt acatgtgcct tcttgtattt ttgttgtatt 360
tttawatcat gcytttttgc aaaatacatt ataaattaaa catggaattt cactagtttt 420
ctgtggtatt cattttccat gggctggaat aatggtccgg tccactatat ggggt 475

<210> 254
<211> 1724
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (440)
<223> n equals a,t,g, or c

<400> 254
ggcacagtac agcaagaggg caaggacaat tgcttaagtt gacctctggg tccggaatcg 60
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ttgcacaccg cggctaatgc cgccgccacg gctacagaaa cgacctgcca agacgtcgcg 180
gcgacccccg tcgcgcggta cccgccgatt gtggcctcca tgacagccga cagcaaagct 240
gcacggctgc ggcggatcga gcgctggcag gcgacggtgc acgctgcgga gtcggtagac 300

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acaaattgag ttattgagct attaaatgca cattttaata taaatgcaga aatcccaaat 1680
aaaatgctaa catactgaat tcagtaatta aaagaaccca ctgc                  1724
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<210> 255
<211> 306
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (195)
<223> n equals a,t,g, or c

<400> 255

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cagcagcagg aaagcgtctc camtctccct gccagcgtgc atccccagct gtsccacggm 120
agagcctgga gacccagtac ctgcagcaca gactccagra gcccagcctt ctgtcaaagg 180
cccagaacac ctgtnagcat ctgctgcaga atcaagcgac tctttcttca gaagcagtct 240
caactgcagg cctattttaa tcagatgcag atagcagaga gctcctaccc acagccaagt 300
cagcag                                                            306
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<210> 256
<211> 890
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (862)

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (881)
<223> n equals a,t,g, or c

<400> 256
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ggctggcaaa gcacacaggc tgagcgctga ggagagggac cagctgctgc caaacctgag 120
ggctgtgggg tggaatgagc tggaaggccg tgatgccatc ttcaagcagt ttcatttcaa 180
agacttcaac agggcctttg ggttcatgac aagagtggcc ctgcaggctg agaaactgga 240
ccaccatcct gaatggttta acgtgtacaa caaggtccac atcacgctga gcacccatga 300
gtgtgccggc ctttcagaac gggacataaa cctggccagc ttcatcgaac aagtagcagt 360
gtccatgaca tagaccctgc ccttcctctt tgaattcttc cgggggaaag ggtgactgaa 420
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ccagccgccg ccgttgaggg ctgagtcctt gctgtgggat gtgccagtgt ccccaccaac 540
accaggaatt tagacctttt ccctgcacca ctctcttcat cctgggggct ctgttacact 600
aatttgaata aactctcccc tttctttgca acttcccagc aacaataatg attttcttgc 660
caggccgtct cttgctccct aattcatttc ccaggaagct gtgatacagg gtgaaataaa 720
gtcttgtctt agaaaccagg accctaaacc ccacactatg taatagaaac acatgtgttt 780
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aaaaaaaaaa aaaaaaaaaa anaaaaaaaa aaaaagaaat naaaaaaaaa 890

<210> 257
<211> 1159
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (84)
<223> n equals a,t,g, or c

<400> 257
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ggagctacga gtagccgccg agangccgcg garccagcga cgaccgaccc agccgagccg 120
ccgccgccgc cgcgccccca tggcggccgc caaggacact catgaggacc atgatacttc 180
cactgagaat acagacgagt ccaaccatga ccctcagttt gagccaatag tttctcttcc 240
tgagcaagaa attaaaacac tggaagaaga tgaagaggaa ctttttaaaa tgcgggcaaa 300
actgttccga tttgcctctg agaacgatct cccagaatgg aaggagcgag gcactggtga 360
cgtcaagctc ctgaagcaca aggagaaagg ggccatccgc ctcctcatgc ggagggacaa 420
gaccctgaag atctgtgcca accactacat cacgccgatg atggagctga agcccaacgc 480
aggtagcgac cgtgcctggg tctggaacac ccacgctgac ttcgccgacg agtgccccaa 540
gccagagctg ctggccatcc gcttcctgaa tgctgagaat gcacagaaat tcaaaacaaa 600
gtttgaagaa tgcaggaaag agatcgaaga gagagaaaag aaagcaggat caggcaaaaa 660
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gaataaaaaa cacatttgga acctggaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1080
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa ggggggggac ggacgcgtgg gcggacgcgt 1140
gggcggacgc gtgggtcga 1159

<210> 258
<211> 755
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (755)
<223> n equals a,t,g, or c

<400> 258
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cttactgttg gtggcaaaat tgccaacata agttaataga aagttggcca atttcacccc 120
attttctgtg gtttgggctc cacattgcaa tgttcaatgc cacgtgctgc tgacaccgac 180
cggagtacta gccagcacaa aaggcagggt agcctgaatt gctttctgct ctttacattt 240
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gaatttaatt ctttcaactt gcaatttgca aggattacac atttcactgt gatgtatatt 360
gtgttgcaaa aaaaaaaaaa gtgtctttgt ttaaaattac ttggtttgtg aatccatctt 420
gctttttccc cattggaact agtcattaac ccatctctga actggtagaa aaacatctga 480
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gacagcctgt ttctatcctg tttaataaat tagtttgggt tctctacatg cataacaaac 600
cctgctccaa tctgtcacat aaaagtctgt gacttgaagt ttagtcagca cccccaccaa 660
actttatttt tctatgtgtt ttttgcaaca tatgagtgtt ttgaaaataa agtacccatg 720
tctttattag aaaaaaaaaa aaaaaaaaaa aaaan 755

<210> 259
<211> 714
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (665)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (704)
<223> n equals a,t,g, or c

<400> 259
gtctattagc ttttacctca aaattttaag ccagaactat catctttgtt tttttatttt 60
ctatctttaa acatttatct gtgaagtgac aaatggccta cagctgtgag agcaaatgga 120
catctcctcc tgaactctga gaagatgtca aaatccacag gcaacttcct cactttgacc 180
caagctattg acaaattttc agcagatgga atgcgtttgg ctctggctga tgctggtgac 240
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gccagcactt tcaatgatag agtttttgcc agtgaattga atgcaggaat tataaaaaca 420
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caggccgcaa aagataagta ccgtgaattg gctgtggaag ggatgcacag agaacttgtg 540
ttccggttta ttgaagttca gacacttctc ctcgctccat tctgtccaca tttgtgtgag 600
gcacatctgg gacactcctg gggaaagcct gacttcaatt atggaatgst ttcatgggcc 660
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<210> 260
<211> 525
<212> DNA
<213> Homo sapiens

<400> 260
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ccgggcaaaa gagttttgct gctaatggga ttcaagcgca tccagaaagt agtactggat 180
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gtgttaggaa aaagccgaaa gtaactccaa caaaggagtc ttacactgaa gaaatagtgt 480
ctgaagcaga atctcatgtt tcaggtattt ctaggaattg tgctt 525

<210> 261
<211> 3000
<212> DNA
<213> Homo sapiens

<400> 261
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<210> 262
<211> 966
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (935)
<223> n equals a,t,g, or c

<400> 262
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ggaaatgtca gtaagggcac atgagaaaac actttaagaa cctattcttc caaagatctt 120
tccagtatct tatgacaaca cagtaaatta tacccactcc aaatgcaaaa gctgaaacta 180
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atgttc 966

<210> 263
<211> 2738
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (762)
<223> n equals a,t,g, or c

<400> 263
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ccaaccagaa agcaaaaagt agaagctcag aaacaggcag aaaaactaat gaagcaaatt 240
ggagtgaaaa atgtgaagct ctcagaatat gaaatgagta ttgctgctca tcttgtagac 300
cctcttaata tgcatgttac ttggagtgat atagcaggtt tagatgatgt cattacggat 360
ctgaaagaca cagtcatctt acctatcaaa aagraacatt tgtttgagaa ttccaggctt 420
ctgcagcctc caaaaggtgt tcttctctat gggcctccag gctgtggtaa aacgttgatt 480
gccaaggcca cagccaaaga agcaggctgt cgatttatta accttcagcc ttcgacactg 540
accgataagt ggtatggaga atctcagaaa ttggctgctg ctgtcttctc ccttgccata 600
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tgtttcttaa atattatttt aaggttatgt gttctttaat tatggtcaaa tataatttgg 2100
tcaccaaaaa tgaaataata gtttaaaaca agtagctgtt actaagtgtg ctaaaaatac 2160
tcattttata attaatttta gttttcttag tatattatta taaattgtgc cctaagtcag 2220
gtacaaatgt acacatcaaa atgcccatat tgtatctatc tgtagtcgtt taatgtgaat 2280
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gcagcatgag gaaaacggca caacacaatc ttgaggtgcc ttctgaatca tcagattaaa 2400
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<210> 264
<211> 1520
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (4)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (15)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (18)
<223> n equals a,t,g, or c

<400> 264

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agsgggcggt cgtgtagctg agcagscctg gggcttggtt ctatgtccct gtggctatgt 120
ttccagtgtc ctctgggtgt ttccaagagc aacaagaaac gaataaatct ctgacccttc 180
tcaggtgcag ccagagagac actagcccac tgatggaygg acagacgtgg gcagggtccg 240
tgtcactaaa ccacccacca ctgccacagc tgcctacaac agacacatca gatgacactc 300
cgggcaaata aatgattttc actgaggact tactggtttt aataataggt cctggtgtag 360
agaagtccct caacctattg tgcaatgagt tttgagaagc gggtaagctg tatgttttgt 420
ggttytgttt cataaatkca tctacaggaa gaccaatatt gactgaatga agctttcatt 480
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attcattgta tcatagcttg tgatgtattc tgctcayggc ttttaaggta aattgtgcca 600
tgatccactg ccattctaat tgctttaaca agtcattacc acactactgt tacatcttaa 660
ttatgcatac agacaggtag acttrtttta catatgtgaa ctaactagtt gtcaaagcaa 720
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tcttttgtga ttcaaacata gtcaagagta caactgtgat atttcatgga agttatgcaa 900
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taaaatgtct ctaacctgcg aamaaatctr tcaagcagac gkcacagtac tgaatttgaa 960
accagaaata ctgggttttt atataaatgc ttcatagatt tgttttatga taaagggcac 1020
ataactctcc taaacctcac accacctctt gaataggtat aataagtcca catcaatgct 1080
gatgccttag ctattattaa actcttacag tatgatgtaa agtgaaagta caatgtaaga 1140
tcattcctag gccaactttg accagtttta tacagaaaca tgtgccaact tttctgtttg 1200
caaggataat atcaaagcaa acaccagaaa gttatatctt tgatgcattt tttcaaaatc 1260
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aaaaaaaaaa aaaaaaaagg 1520

<210> 265
<211> 1568
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1318)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1320)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1469)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1482)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1502)
<223> n equals a,t,g, or c

<400> 265
acccacgcgt ccgcacaagc cgtctaccta accagaacgg gactgtttta ccctcagagt 60
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agcaactgtg tgtcactaat acccggactc cttcatcagt cagaaagcag ttgtttgcct 180
gtgtgcctaa gacaagtcct ccagcaacag tgatttcttc tgtgacaagc acttgtagtt 240
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ctgcaagtac ttctcaagca cagctttctt cacaaaagat ggagtctttc tctgctgtgc 360
cacccaccaa agagaaagtg tccacacagg accagcccat ggcaaaccta tgtaccccat 420
cttcaactgc aaacagttgc agtagctctg ccagcaacac cccgggagct ccagaaactc 480

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acccatccag tagtcccact cctacttcca gtaacacaca agaggaggca cagccatcca 540
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tgactttgac atcacccaga atggttgctg ctgataatca ggacaccagt aatttacctc 660
agttagctgt accagcacct cgagtttctc atcgaatgca gcccagaggt tctttttact 720
ccatggtacc aaatgcaact attcaccagg atccccagtc tatttttgtt acgaatccag 780
ttactttaac accacctcaa ggcccaccag ctgcagtgca gtttcttcag ctgtgaacat 840
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cccagccaca cttttcaatc acttcagcag tctttttgat agtagtcagg tgccagctaa 960
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caacgttggg gccaaccaaa agggagtcag tgccagtcaa ggattcggaa aggttacctt 1440
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<210> 266
<211> 545
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (338)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (394)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (508)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (540)
<223> n equals a,t,g, or c

<400> 266

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gctgttggag cttttgcaaa tacccagcta atgaaaggca cttaagattg ggcccatctg 120
catcatcaca ttgaagtttt ctgtctaaag gaaggttcca gctacctgtt acccttttgc 180
taaacacagt tgcagtgttg cagtgtattt catgacaaaa gtgcactcta gttttctgtg 240
aaatgattat tttctctgaa atgattcttg gtcatgttga gcttctaaat gttaaagaga 300
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acatagtgct tttgacctgt gggaaatctc atcttggnta ccatggtgct gcacagacca 360
tcaggaagaa ctgaaaagtt caggcaactt gagnaaaata aagtcaccac cmgcaaggar 420
gctgtctaaa ataaccggra gattattamc ccagcacgtg gragartgtg ctagtgggta 480
gatgttwtgg aargctacta ggggtccncc cttaggtgcc tgtgctagtc ctaagggggn 540
ggtgg 545

<210> 267
<211> 762
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (712)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (740)
<223> n equals a,t,g, or c

<400> 267
aattcggcac agggaatggc ggggtctcct gagttggtgg tccttgaccc tccatgggac 60
aaggagctcg cggctggcac agagagccag gccttggtct ccgccactcc ccgagaagac 120
tttcgggtgc gctgcactgc gaagcgggct gtgaccgaaa tgctacaact gtgcggccgc 180
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caggaagctt cagataattg ttttatggat tctgacatca aagtacttga agatcagttt 360
gatgaaatca tagtagatat agccacaaaa cgtaagcagt atcccagaaa gatcctggaa 420
tgtgtcatca aaaccataaa agcaaaacaa gaaattctga agcagtacca ccctgttgta 480
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agaagtcttt ttcagttgtc ataaggaaac cagatgctwa acctgagact ttatwacaca 660
gattgaaacc acaccaacag aaactggttt caggaaaaac cttttacgtg gnacttgaaa 720
aagaaagcaa acttaaagan ttggccccca aaagaaaaat gg 762

<210> 268
<211> 1433
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (893)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (947)
<223> n equals a,t,g, or c

<400> 268
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tgacctcaca gggtggacac ccggaggcga gatcccgttc cgcggagcag agccctttct 120
catggaacag gacgtgtcgg ggccgctgct ggggaaagca gccgggcccc cagatgctgg 180
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cctcggtgcc tgctgtgaac tgctttccct cggaatgttt ccgtaacagg acattaaacc 1380
tttgwtttta cttccgtgaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa ggg 1433

<210> 269
<211> 2278
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (205)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (335)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2277)
<223> n equals a,t,g, or c

<400> 269
cacagtatgg aaatacgggg aagcaggaga tagatccgga aaaataaagt tgagaccaga 60
ctgtagactg tcttgaatgc caagctaaag tgtttatact ttattcagta aataaacaaa 120
actggtagcg caagaaaagg agtgagcaag tggtaacaac ttaaagacaa ttcattttgc 180
tcccacgtgt tatatcatga atttnttggg cccaaagtca tatatagaat tttttaaata 240

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attgatactt gattaaagaa agcacaaaga cataaaaata aaacattctt ggtgggggga 300
aatggttttt aagaggcatt ttattaattt taccncaggt atatttgccc tgtgttttac 360
aaacaaaaar gaggtatgtg ggttacatgt atgaaacact ggatcagaag gacccagtat 420
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ccaaggaata cagaggaagt tttcttata aaccaggagc ttgtgtgcca gcccttgaac 660
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aatgtgtatt tagaatattt gtataactgt gtaaaataaa aaaggaatta tgtggtcagt 2160
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<210> 270
<211> 2533
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1280)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2514)
<223> n equals a,t,g, or c

<220>

<221> misc feature
<222> (2531)
<223> n equals a,t,g, or c

<400> 270
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tgctggaagc gtcgaagctc agcggggccg cggacactga cctgtgctta gaactcatcc 180
tggcccgcag agcctgccgc gagtccctgg cgtcccctgt ggcgggctct tggagccact 240
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gccgccgggt tcaagcactg tcttcctgtt ggccctgaca atcatagcca gcacctgggc 360
tctgacgccc actcactacc tcaccaagca tgacgtggag agactaaaag cctcgctgga 420
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<210> 271
<211> 1618

<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1612)
<223> n equals a,t,g, or c

<400> 271
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<210> 272
<211> 470
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (395)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (404)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (425)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (429)
<223> n equals a,t,g, or c

<400> 272
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cttagaggtc tggtatctag tgagcaggct gaggcctcag gactagttca gtgttaagga 240
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accaaaatgg cagacattga gtgagtactt cttgncccag tttnaattct ttccttcctt 420
ttttncccng gttgtgagtt aattggttca acttctgggt tcagggtttt 470

<210> 273
<211> 983
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (879)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (915)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (930)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (967)
<223> n equals a,t,g, or c

<400> 273
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tgagggagag ctggggcctg ctcccggaga gatacggcta tgtcgatcga aatcgaatct 120
tcggatgtga tccgccttat tatgcagtac ttgaaggaga acagtttaca tcgggcgtta 180
gcaccttgca ggaggagact actgtgtctc tgaatactgt ggacagcatt gagagttttg 240

tggctgacat taacagtggc cattgggata ctgtgttgca ggctatacag tctctgaaat 300
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aaacacagcc agagcgatat attcatctgg agaacctttt ggccaggtct tactttgatc 480
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ccttagctgg cgaagtcagt gtggtgcctc catctcgtct catggcattg ctgggacagg 600
cactgaagtg gcagcagcat cagggattgc ttcytcctgg tatgaccata gatttgtttc 660
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cccaggntgg gaaaattcaa ggt 983

<210> 274
<211> 2006
<212> DNA
<213> Homo sapiens

<400> 274
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aatgagcaag ccccagaagt attttacaac cagagtgggt aatgaggagg gggcttactg 180
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caaaaaaaaa aaaaaaaaaa aaaaat 2006

<210> 275
<211> 1376
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (4)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1368)
<223> n equals a,t,g, or c

<400> 275
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<210> 276
<211> 2594
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature

<222> (2198)
<223> n equals a,t,g, or c

<400> 276
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ttttcctccg ctggagcagc tatggcggcg gtgaagaccc tgaaccccaa ggccgaggtg 120
gcccgagcgc aggcggcgct ggcggtcaac atcagcgcag cgcggggtct gcaggacgtg 180
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caaaaaaaaa aaaa 2594

<210> 277
<211> 679

<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (438)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (617)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (653)
<223> n equals a,t,g, or c

<400> 277
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tactggctgt tgctcangcc ccagcactca aagtmatcaa agccgacttc aancccatgc 660
ccaaaccgtg gaaccaaaa 679

<210> 278
<211> 1478
<212> DNA
<213> Homo sapiens

<400> 278
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ggacttccaa ggcgcctggc agtccgcctc ggggcccagg ccctcctggg ggctgccaag 720
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ggggccacca tccatgcctt gcatgtgctg gagagtgggg gcttccgctc cctgctcatc 840
aacgctgtgg aggcctcctg catccgcaca cgggagctgc agtccatggc tgaccaggag 900
caggtgtcac cagccgccat caagaagacc atcctggaca aggtgaagct ggactcccct 960
gcaggraccg ctctgtcgcc ttctggccac accaagctgc tccccсgcag cctggcccca 1020
gcgggcaagg attgacacgt cctgcctgac caccatcctg caccaccttc tcttctcttg 1080
tcactagggg gactaggggg tccccaaagt ggcccacttt ctgtggctct gatcagcgca 1140
ggggccagcc agggacatag ccagggaggg gccacatcac ttcccactgg aaatctctgt 1200
ggtctgcaag tgcttcccag cccagaacag gggtggattc cccaamctca acctcctttc 1260
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ctgccacatg aggagggagg ccctgcctgt gtgggagggt ggttactgtg ggtggaatag 1380
tggaggcctt caactgatta gacaaggccc gcccacatct tggagggcat ctgccttact 1440
gattaaaatg tcaatgtaat ctaaaaaaaa aaacaaaa 1478

<210> 279
<211> 2321
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (474)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (483)
<223> n equals a,t,g, or c

<400> 279
ggcacaggtc cgagcgccgc catggctctg ctgtccgagg gcctggacga gstgcccgcc 60
gcctgcctgt cgccgtgcgg gccgccccaac ccgaccgagc tgttcagcag tcacggcgcc 120
tggctctgga ggactggtgg cgggcggccc cgaagccttc gcggccttcc tgcgacgcga 180
gcgcctggct cgtttcctga accccgatga rgtgcacgcc attctgcgcg cggcggagag 240
gccgggagar garggcgcgg cggcggcggc ggcggccagg actcgttcgg ctcctcgcac 300
gactgctctt cgggcactac ttccccgagc agtcggacct ggagccamcg ctgttggagc 360
ttggctggcc cgccttctam cagggcgcct amcgcggcgc camgcgtgtc gagacgcact 420
tccagccccg cggcgctggc gaaggtggcc cctacggctg caaggacgct ctgngccaca 480
ctnccgctcg gcgcgagagg tgattgcagt ggtcatggac gtgttcacag acatcgacat 540
cttcagagac ctgcaagaaa tatgcaggaa acagggagtt gctgtgtata tccttctgga 600
ccaggctctc ctctctcaat ttytggatat gtgcatggwt ctgaaakttc atcctgaaca 660
ggaaaagtta atgacagttc ggactatcac aggaaatatc tactatgcaa ggtcaggaac 720
taagattatt gggaaggttc acgaaaagtt cacgttgatt gatggcatcc gcgtggcaac 780
aggctcctac agttttacat ggacggatgg caaattaaac agcagtaact tggtaattct 840
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gcccatcagc cccaaactcc tgtctcactt ccagagcagc aacaagtttg atcacctcac 960
caaccgaaaa ccacagtcca aggagctcac cctgggcaac ctgctgcgga tgcggctggc 1020
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ggcagagcgc aagccccatg actgtgagtc ctctactgtt agtgaggaag actacttcag 1140
cagccacagg gacgagctcc agagcagaaa ggccattgac gctgccactc aaacagagcc 1200
aggagaggag atgccagggc tgagtgtgag tgaggtggga acacaaacca gcatcaccac 1260
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ttggtccaga tcgaccacta ctcagactga catggatgag aacattctct ttcctcgagg 1380
aactcaatct acagaagggt caccagtctc aaaaatgtct gtatcgagat cttccagttt 1440
gaagtcttcc tcctctgtgt cttcccaagg ctctgtggca agctccactg gttctcccgc 1500
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attattttac atgctttgtt ttgtcatgta tataccaggt attggtttta tggtttaaac 1980
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ttactatacc ttttctrtgt ttagatacaa ataccattat gttacagttg cctacagtat 2160
tcagtgcagt aacatgatgt acaggtttgt agcctgtttt gcatttttct taggttgtat 2220
gctcttctgt tttaaaggtt tgaatcacca gcatttttgt gatcaaaatc ctatttagaa 2280
aaaataaaac tactttctgt ttatctcttt agaaaaaaaa a 2321

<210> 280
<211> 1693
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (200)
<223> n equals a,t,g, or c

<400> 280
ggcacagtgt ggagcggttg tggggcggca ctgcggaact gcgcgattgt ggttcccgcc 60
gtatttcccg ttccccatct agtaactccc atctcagccc acgtatctcc ctgagtggaa 120
atctcgggcc ccagaccagt cgattgggag gtccgccctc cccttcagcg acttggtctg 180
tgttttggca gttgccgcgn acaacagtca cttccgggaa ggggctctgc gaatctcctt 240
ccgtcggtcc gctcagaatc agctgtcctc tcagactgtg tgggtggttt ccccggccgc 300
agctccgtac gggcttggat tgctgggcct cggtgcaccc cagcctcccc cactcgggtt 360
ctgagcttga gctggcggct ctttaactct gcttcactgt tgctcttggc aacatccact 420
tccgggagcg agtgccgttt cccccgctca ccgcgggcta gggagcgtgg gattccggac 480
tgtgagcggc tgttagtgcg tcgcagctgc tggcgatccg gcgaccctcg gccggcagga 540
cccgcgggcc acgcagccgg ggccttctca acgcctcagt acctcggcgg gaccgccatg 600
gttctgctgc acgtgaagcg gggcgacgag agccagttcc tgctgcaggc gcctgggagt 660
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cagcgcctct gctcagaaat ggaagaatta gccgaacatg gcatatttct ccctcctaat 780
atgcaaggac tgaccgatga tcagattgaa gaattgaaat tgaaggatga atggggtgaa 840
aaatgcgtac ccagcggagg tgcagtgttt aaaaaggatg atattggacg aaggaatggg 900
caagctccaa atgagaagat gaagcaagtg ttaaagaaga ctatagaaga agccaaagca 960
ataatatcta agaaacaagt ggaagccggt gtctgtgtta ccatggagat ggtgaaagat 1020
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gatcccatcc gcatggagtt tgaaaataag gaagacttgt cgggaacaca ggcagggctc 1140
aacgtcatta aagaggcaga ggcgcagctg tggtgggcag ccaaggagct gagaagaacg 1200
aagaagcttt cagactacgt ggggaagaat gaaaaaacca aaattatcgc caagattcag 1260
caaaggggac agggagctcc agcccgagag cctattatta gcagtgagga gcagaagcag 1320

ctgatgctgt actatcacag aagacaagag gagctcaaga gattggaaga aaatgatgat 1380
gatgcctatt taaactcacc atgggcggat aacactgctt tgaaaagaca ttttcatgga 1440
gtgaaagaca taaagtggag accaagatga agttcaccag ctgatgacac ttccaaagag 1500
attagctcac ctttctccta ggcaattata atttaaaaaa aaaaaaaagg ccacttactg 1560
ccctctgtaa aagatgttaa catttctagt tttcttttag tgtgaatttt taaaatagca 1620
gttattcaag gttttagaac ttaataaata cctagtcaga aaaaaatgtg taaatcgttt 1680
ttgtttcagg act 1693

<210> 281
<211> 258
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (42)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (64)
<223> n equals a,t,g, or c

<400> 281
ggcagagcca ggactcagta atccctgggg ggcaggctct gnagccctcg gccacacgtg 60
gctnccggca cccatggtcc cagtgccttg gaatggagac ggccagttct ggggccagat 120
gtggtgctct ggaatccagt cccatttcct tcctggccac gagctgtccc agcggcctct 180
tcagccgcat tcagccccta cttacctggg gaccccggct ggggcacgag aagcaccagg 240
ggggttaggg cccaaagg 258

<210> 282
<211> 1764
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1764)
<223> n equals a,t,g, or c

<400> 282
gctgtgtcct ggagctttat ttggggagtt tyayccagaa tggtgggaga aacctcccag 60
gtgccaggta ccccgcatcg tgacccttca cttggtgtct taggaagtca agctgaggga 120
tgctgagtcc tcccctgctg gcccctgcag ccccagccct gcttttcatc ccccacccct 180
gcaaacatgg aggagccccc tccttctcac ctcggtctcc tagcccctga catggagaas 240
cctgagacaa gccacagaac ccctcttttc taaaatggag acaataattt cctacctccc 300
aagggagcag agaggcctcg tggcacgtcc gtggccaggg agcccactgt cctggctggc 360
ggcgggatcg tgcrctcctc tgtctcccgg atgagaagcc ccgtttccat ggtcttgacc 420
cttcctttct cccggctgtc agaactgggt ctcttgattt tgcccctaca ttatgcctct 480
gtgggaaaaa aaaaaaaatc agaccaagaa atgagcctga aattcagtgt ttaccatggc 540
tcaaggatgc ccatctggtg tccagttgcc ttttgtattc aaatgaaaat gctttgtaca 600

actgaggagt tacagtgaag tgttaaccag gggtccaggg agcgagttga aaagatggag 660
tgagtgtatt tgcagccagg gagctgcagg gtggatttga ggggccatac cctctgagca 720
cttaaaaaag gtatttgctc caggccaggc agcaggctgt ggacaccctt gccaccactg 780
gggactgcca ctgaggactc cccgagcacg ttgttccccg tcttctccaa ggtgttgagg 840
tgagctgggg ttggccccgg cccaggcttc tgtcccaagg agaagctgcc actgacagtc 900
atcctaccgc actgctaaag agaatgttcg cagtggtggg cggcgtgcct gtgccaaccc 960
ttccagggac ccggccatgg gggaccttgg cccaaggatg cctggggcct gccagctgtg 1020
ctgcaaargt gggggcccca caccctaaaa ctaacccagg ccccagacca ctggaggcca 1080
gggcttccct gcacgggcta aggggagttg ggatatcacc ccaaagtgac cttgccagtg 1140
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ggggttcccg ctttgaggcc caccttccat actccccttg actcggctct ggctgaactg 1260
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cccatatgaa gtattcaata gttctacttg tgaatttgta tttattttga gttatacttg 1500
acacagaatt cctttttttaa aaaaatatgt gtgtattttg gaaaaaaaat tcatagatgt 1560
taaaatttct gcatggttac cagtttttct cacaacactg aatttggtag cttttcccga 1620
aaaaatcttc acagtaattt tttgtctgta tatatttgag ggcctttttt taaaaaaaaa 1680
aaaaraaaag aaaaatataa tkgtttgatt tttgagattw aaacaaacma aaagagaggc 1740
attttcmaaa tttcagaact ttcn 1764

<210> 283
<211> 799
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (750)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (760)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (769)
<223> n equals a,t,g, or c

<400> 283
aattcggcac gagtcagagg ccgagtccgt cactggaagc cgagaggaga ggacagctgg 60
ttgtgggaga gttccccccgc ctcagactcc tggtttttc caggagacac actgagctga 120
gactcacttt tctcttcctg aatttgaacc accgtttcca tcgtctcgta gtccgacgcc 180
tggggcgatg gatccgttta cggagaaact gctggagcga acccgtgcca ggcgagagaa 240
tcttcagaga aaaatggctg agaggcccac agcagctcca aggtctatga ctcatgctaa 300
gcgagctaga cagccacttt cagaagcaag taaccagcag cccctctctg gtggtgaaga 360
gaaatcttgt acaaaaccat cgccatcaaa aaaacgctgt tctgacaaca ctgaagtaga 420
agtttctaac ttggaaaata aacaaccagt tgagtcgaca tctgcaaaat cttgttctcc 480
aagtcctgtg tctcctcagg tgcagccaca agcagcagat accatcagtg attctgttgc 540

tgtcccggca tcactgctgg gcatgaggag agggctgaac tcaagattgg aagcaactgc 600
agcctyctca gttaaaacac gtatgcaaaa acttgcagag caacggcgcc gttgggataa 660
tgatgatatg acagatgaca ttcctgaaag ctcactcttc tcaccaatgc catcagagga 720
aaaggytgct ttcccttccc agacctctgn ttttcaaaan gccttcggna acttccagtt 780
ggccaaaaaa ggggcccgt 799

<210> 284
<211> 1489
<212> DNA
<213> Homo sapiens

<400> 284
aggtagactg tggcaatrag gcagctaagt ggttcaccaa cttcttgaaa actgaagcgt 60
atagattggt tcaatttrag acaaacatga agggaagaac atcaagaaaa cttctcccca 120
ctcttgatca gaatttccag gtggcctacc cagactactg cccgctcctg atcatgacag 180
atgcctccct ggtagatttg aataccagga tggagaagaa aatgaaaatg gagaatttca 240
ggccaaatat tgtggtgacc ggctgtgatg cttttgagga ggatacctgg gatgaactcc 300
taattggtag tgtagaagtg aaaaaggtaa tggcatgccc caggtgtatt ttgacaacgg 360
tggacccaga cactggagtc atagacagga aacagccact ggacaccctg aagagctacc 420
gcctgtktga tccttctgag agggaattgt acaagttgtc tccacttttt gggatctatt 480
attcagtgga aaaaattgga agcctgagag ttggtgaccc tgtgtatcgg atggtgtagt 540
gatgagtgat ggatccacta gggtgatatg gcttcagcaa ccaggaggga ttgactgaga 600
tcttaacaac agcagcaacg atacatcagc aaatccttat tatccagcct tcaactatct 660
ttaccctgga aaacaatctc gatttttgac ttttcaaagt tgtgtatgct ccaggttaat 720
gcaaggaaag tattagaggg gggaatatga aagtatatat ataaatttta ggtactgaag 780
gctttaaaaa taattaagat catcaaaaat gctattttga atgttatcat ggctattaca 840
cttttacttc ctgactttaa tattgatgaa taaagcaagt ttaatgratc aactaaaaag 900
ctgcaaaaat gtttttaaaa tgtgtgcctt ttattaccta tcagtctatg ttttgggaga 960
aatgggaagc aacagatcac tgtgtcctsa tgtgcaggac gcatgttacc acactcacaa 1020
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tttactctag cattatggaa tctgggctgt acttgagtat ggaaattctc ttatagactt 1140
agttttagta ctctattaca cctttactaa gccacataaa agtaatctgt ttgtgtgtaa 1200
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gaatggaatt ttgagagtag gaatgcaagg aagacagcat gaacatattt ttttcagtgc 1320
aaataatttt ttcgtaacaa agaaacgaac aactttggta tgatcttaag caaaaatact 1380
cactgaaata gtatgtggat gaattcacct acttacaatt ttatggtttc tttgtaaata 1440
ataaatgtga atctcaattt tstaaaaaaa aaaaaaaaaa aaaagttct 1489

<210> 285
<211> 702
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (695)
<223> n equals a,t,g, or c

<400> 285
ggcagaggct cccaaaatgg tgggattaca ggtgtgtggg ccaccgtgcc tggctgattc 60
agcatttttt atcaggcagg accaggtggc acttccacct ccagcctctg gtcctaccaa 120

tggattcatg gagtagcctg gactgtttca tagttttcta aatgtacaaa ttcttatagg 180
ctagacttag attcattaac tcaaattcaa tgcttctatc agactcagtt ttttgtaact 240
aatagatttt tttttccact tttgttctac tccttcccta atagcttttt aaaaaaatct 300
ccccagtaga gaaacatttg gaaaagacag aaaactaaaa aggaagaaaa aagatcccta 360
ttagatacac ttcttaaata caatcacatt aacattttga gctatttcct tccagccttt 420
ttagggcaga ttttggttgg tttttacata gttgagattg tactgttcat acagttttat 480
accctttttc atttaacttt ataacttaaa tattgctcta tgttagtata agcttttcac 540
aaacattagt atagtctccc ttttataatt aatgtttgtg ggtatttctt ggcatgcatc 600
tttaattcct tatcctagcc tttgggcaca attccygtgc ttcaaaatga gagtgacggc 660
tgggcatggt gggctcccgc ctgtaaatcc cagtnacttg gg 702

<210> 286
<211> 1175
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1153)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1166)
<223> n equals a,t,g, or c

<400> 286
ctaaagggaa caaaagctgg agctccaccg cggtggcggc cgctctagaa ctagtggatc 60
ccccgggctg caggaatgtt actatttcta catgttgtcc atgatgtgac tttcgtaaac 120
cttcaaaatt atttgggcat agtgctctat gtttaataaa ggtttttata gatgttttat 180
tccatatgtc ttcacaagtc aggacccaca attacccgtg ttttgtttga acagcagtgt 240
cccatctggc ttcgacccaa caaagttcat taacctggga tgaatggggt tggcctgttg 300
gtgatttgga tgctgttctg tgatctaaaa caactcttat tgaattgtat ttactcccta 360
aacaacactt gacaggctgt tgcacagggc ttctatagat cagtgtgtta ggaatgggag 420
gccccttcct gcctgccttc ccatattggt cccttgacat tgacaaaagc acagtgactg 480
tcagcagatt cctttacttt tgtttgtggg aggtaggaat tgttttaatg cattttaaac 540
agtgtttctg aaattggatg gctggctaat agacactgaa tcacccggag tgcttatctt 600
aaaattgcag atttagggag cctgccaatt taacagtctc atcaggtgat tcttttcaac 660
agtaatgttt gagaattact gggttaaatt gtgggaaagg gtccagattt taaaggtgct 720
ttaaggttgc cctctgccga tactgtttgt ctttctactg tttcatcccc taacttcccc 780
caaccctcaa attaaaacta gaactataga tccacatgaa cgcacgcctg agatttggcc 840
actcacctat gttttgggtg gattgcctag gaaagcaagt catatggcca ttgatagttc 900
tcatgtaatt agttttgctc accactagta cagatgaccc gtttacacgt ggcttccctc 960
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tataaccggt gtgtcatatg cttgctattt aaagctgtgt gttggttttg tttttctgcc 1080
acattcacta gtttttaat aaatattttc caaaaatgga aaaaaaaaa aaaaaaaaaa 1140
aaaaaaaaa aanccccggg gggggncccg ggccc 1175

<210> 287
<211> 2873
<212> DNA

<213> Homo sapiens

<220>
<221> misc feature
<222> (829)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2870)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2871)
<223> n equals a,t,g, or c

<400> 287
ggcgcggcgg cggtagcagc caggcttggc ccccggcgtg gagcagacgc ggacccctcc 60
ttcctggcgg cggcggcgcg ggctcagagc ccggcaacsg gcgggcgggc agaatgagtc 120
tgcaggtctt aaacgacaaa aatgtcagca atgaaaaaaa tacagaaaat tgcgacttcc 180
tgttttcgcc accagaagtt accggaagat cgtctgttct tcgtgtgtca cagaaagaaa 240
atgtgccacc caagaacctg gccaaagcta tgaaggtgac ttttcagaca cctctgcggg 300
atccacagac gcacaggatt ctaagtccta gcatggccag caaacttgag gctcctttca 360
ctcaggatga caccccttgga ctggaaaact cacacccggt ctggacacag aaagagaacc 420
aacagctcat caaggaagtg gatgccaaaa ctactcatgg aattctacag aaaccagtgg 480
aggctgacac cgacctcctg gggggatgcaa gcccagcctt tgggagtggc agctccagcg 540
agtctggccc aggtgccctg gctgacctgg actgctcaag ctcttcccag agcccaggaa 600
gttctgagaa ccaaatggtg tctccaggaa aagtgtctgg cagccctgag caagccgtgg 660
aggaaaacct tagttcctat tccttagaca gaagagtgac acccgcctct gagaccctag 720
aagacccttg caggacagag tcccagcaca aagcggagay tccgcacgga gccgaggaag 780
aatgcaaagc ggagactccg cacggagccg aggaggaatg ccggcacgnt ggggtctgtg 840
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cacccctgca gggtctgcct ggcgaacctg ggctgccctg cgggtgtggg cacccccgtg 960
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gcaggccaaa tggccagctc ctcgaggagc ggacctgtaa aactagaatt tgatgtatct 1140
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aagcctccct tgaggaaagc agcagtgagg cagcaaaagg ccccgcagag gtggaggagg 1260
acgacggtag gagcggagag gagaggaccc ccccatgcca gcttctcggg gctcttacca 1320
cctcgactgg gacaaaatgg atgacccaaa cttcatcccg ttcggaggtg acaccaagtc 1380
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<210> 288
<211> 2104
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (44)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (497)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1323)
<223> n equals a,t,g, or c

<400> 288
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gtaagggtgg ctgtgcgact gcggccattt gtggatggaa cagcgggagc aagtgatccc 180
ccctgtgtgc ggggcatgga cagctgctct ctagagattg ctaactggag gaaccaccag 240
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cctggggtga tcccgcgggc tctcatggac ctcctgcagc tcacaaggga ggagggtgcc 480
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aaaa 2104

<210> 289
<211> 1251
<212> DNA
<213> Homo sapiens

<220>
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<222> (1194)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1211)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1215)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1231)
<223> n equals a,t,g, or c

<400> 289
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aactattggt acggggctag agaggaaggc tttgggattg ccggggagca gcgagcgacc 120

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gacttccgtt tccagttacc aaggcacgag gatccggtgt tccaacccag ggggaaaaat 180
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ggagaatctt caactgctgg tggaccggcc cgatggcacc tactgtttcc gtctgcacaa 300
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gcacgtcaca gctctggatt accttgcacc ttatgccaag tataaagttt ggataaagcc 480
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atttggctaa taggagcaat tcastatttt tctatacagt aattggtgtg tggnatagar 1200
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<210> 290
<211> 1591
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (768)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1538)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1560)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1562)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1568)
<223> n equals a,t,g, or c

<400> 290

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cggatggaaa aatcaatcaa accaccacaa agtggttatt tatgtgtcgt gagtgatgtc 120
ttgtttacat tatgttctag actggccccc tgaatctcca gacaaccaat atcacttaaa 180
taagtgatag tcttaatact agtttttaga ctagtcattg gagaacagat gattgatgtc 240
ttagggccgg agaaacgcag acggcgtacc acacaggaaa agatcgcaat tgttcagcag 300
agctttgaac cggggatgac ggtctccctc gttgcccggc aacatggtgt agcagccagc 360
cagttatttc tctggcgtaa gcaataccag gaaggaagtc ttactgctgt cgccgccgga 420
gaacaggttg ttcctgcctc tgaacttctg ccgccatgaa gcagattaaa gaactccagc 480
gcctgctcgg caagaaaacg atggaaaatg aactcctcaa agaagccgtt gaatatggac 540
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attcgcagca gaccattctt tccagattca tcttatgntc gatatttcac caaattaagn 1560
cntttctnaa gaggcggccc gtacccattc g 1591

<210> 291
<211> 2386
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (448)
<223> n equals a,t,g, or c

<400> 291
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gaaagagaga gtgggcagac atcgaagcca aacagcagta tcccggaagc actcatgcaa 120
ctttggtggc ggccactcag ttttctctgc cagtgtckgg tgattttaca acgagatgct 180
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tccaccagta aaagacaatt catctggnca ctttcatcgt gttaattaga agacttgatt 480
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aaattgacat tccatctgtc tttattggtg aatcatcagc taattctctg aaagatgaat 660
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taaggatttt tatatggcct tgtatgaggg gagtttgaat gttaataaac atgttttcca 2340
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<210> 292
<211> 983
<212> DNA
<213> Homo sapiens

<400> 292
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gcttgtgggg tcttaggtga tggctgcctt ctttcttcat caccacaccc agcttcttgc 180
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<210> 293
<211> 2655
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (2595)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2611)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2641)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2651)
<223> n equals a,t,g, or c

<400> 293
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atacccaaaa ttggcatgac tacttataaa atagtgcctc ccaaatcctt ggaaatatcg 120
aaagactggc aatcagaaac catagagtat aaagatgatc aggacatgca tgctttaggg 180
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<210> 294
<211> 1738
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (854)
<223> n equals a,t,g, or c

<220>
<221> misc feature
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<220>
<221> misc feature
<222> (1693)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1717)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1729)

<223> n equals a,t,g, or c

<400> 294
ggtggagcaa agaaacctgc cctggaaatt tgaacatata ggcattgggc ttctgtctct 60
actgctgara gatgaccgag tgttgcctct tcgtgccata cggtttttg ttgaraatct 120
caaccatgat gcaattgtag ttcgaaagat ggctatctca gctgttgctg gtatccttaa 180
acagctaaaa agaaccacaa aaagctgacc attaacccct gtgaaatcag tggatgccct 240
aaacccaccc aaattattgc tggtgatagg cctgataatc attggttgca ttatgacagc 300
aaaactatac caagaactaa aaaagaatgg gagtcaagtt gctttgtgga aaaaactcac 360
tggggatact acacctggcc aaagaatatg gttgtttatg ctggtgtgga agagcagcct 420
aagcttggca gaagcaggga ggatatgaca gaggcagaac agattatatt tgatcatttt 480
tctgatccta aatttgttga gcagttaatt acttttctat cattagaaga cagaaaagga 540
aaagataagt ttaatccacg acgtttttgy ctctttaagg gtatattcag gaattttgat 600
gatgccttcc tgccagttct gaagccccat ttagaacatt tggttgcaga ttcacatgaa 660
agcacccagc gatgtgttgc agaaattata gctggtttaa tcagaggttc taagcactgg 720
acatttgaaa aggtggagaa gctttgggag cttctgtgcc ctctgcttag aacagcactg 780
tccaatatta ccgtagaaac ttataatgac tggggagctt gtatagcaac atcctgtgaa 840
agcagagatc cccnggaaac ttcactggct ttttgaactg ctgttggaat caccattgag 900
tggtgaagga ggatcctttg tagatgcatg tcgactttat gtactacaag gtggccttgc 960
ccagcaagaa tggagagtgc ctgaactatt gcacagacta ctgaagtact tggaacccaa 1020
actcacccag gtttacaaaa atgtcagaga aagaatagga agtgtgctga cctacatatt 1080
catgatagat gtatctttgc caaataccac accaaccata tcgcctcatg tccctgagtt 1140
tactgctcga attctggaga aattgaaacc tctcatggat gtggatgaag aaattcagaa 1200
ccatgttatg gaagaaaatg gaattggtga agaagatgag cgaactcagg gcattaaact 1260
cttgaaaacc atattgaaat ggctgatggc aagtgcagga agatcctttt ctacagcagt 1320
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gctttaccct catcaagtgc ctttggtact tcaggtgcta aaacaaacag caagaagcag 1500
ttcttggcat gcacgataca cagtactgac ctacctccag accatggtat tttataacct 1560
ctttatttcc taaacaatga agatgcagtt aaaggatatc aggtgggctg ggttataagt 1620
cttttgggag ggacgaacca actgggaggg ttccggagaa atgggctggc ctaacttanc 1680
cttaagccgg gtntggctaa acagtggtaa actttncct taacccatng ggaccagt 1738

<210> 295
<211> 1020
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (5)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (31)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (37)

<223> n equals a,t,g, or c

<400> 295
ccggnccggc attcccgggt cgacccacgc ntccggngcg gtggccctgt atttcatcga 60
taagctggca ctgagagcag gaaatgagaa ggaggacggt gaggcggccg acaccgtggg 120
ctgctgttcc ctccgsgtgg agcacgtcca gctgcacccg gaggccgatg gctgccaaca 180
cgtggtggaa tttgacttcc tggggaagga ctgcatccgc tactacaaca gagtgccggt 240
ggagaagccg gtgtacaaga acttacagct ctttatggag aacaaggacc cccgggacga 300
cctcttcgac aggctgacca cgaccagcct gaacaagcac ctccaggagc tgatggacgg 360
gctgacggcc aaggtgttcc ggacctacaa cgcctccatc actctgcagg agcagctgcg 420
ggccctgacg cgcgccgagg acagcatagc agctaagatc ttatcctaca accgagccaa 480
ccgagtcgtg gccattctct gcaaccatca gcgagcaacc cccagtacgt tcgagaagtc 540
gatgcagaat ctccagacga agatccaggc aaagaaggag caggtggctg aggccagggc 600
agagctgagg agggcgaggg ctgagcacaa agcccaaggg gatggcaagt ccaggagtgt 660
cctggagaag aagaggyggc tcctggagaa gctgcaggag cagctggcgc agctgagtgt 720
gcaggccacg gacaaggagg agaacaagca ggtggccctg ggcacgtcca agctcaacta 780
cctggacccc aggatcagca ttgcctggtg caagcggttc agggtgccag tggagaagat 840
ctacagcaaa acacagcggg agaggttcgc ctgggctctc gccatggcag gagaagactt 900
tgaattctaa cgacgagccg tgttgaaact tcttttgtat gtgtgtgtgt ttttttcact 960
attaaagcag tactggggaa ttttgtacaa waaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1020

<210> 296
<211> 684
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (660)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (675)
<223> n equals a,t,g, or c

<400> 296
tcgacccacg cgtccgaatt tttttctcag aatagcaata gcttatccaa agaaagctag 60
tgtacatctt ccaaagcttt taaaataaaa aagaggagga gttacacttg cagaatgtat 120
atcttctggg atgcttctcc ctactccact ggacactgtt tgaaagtttg tagtttataa 180
tattcttacc taggctgtgt tggtcagctt agaatatcta agtgatagga taaaactaaa 240
gctgagtggc aaactgccag tctatatact gcatttagtc tataggctgt tttgtttggc 300
ccacaaagca ttttattatt taagtttatg ccaacattta agaatcaaga atttcccaga 360
cattcagatt tctgacttca attgaaaatc tgacagtata aaccctatta tattcctgca 420
tggcataaaa tcttcagttg ctgaatggtg atatccactt ttagaaagag tactctaccc 480
tgttctgcat tcatacaacc taagccaacc cgcccttcac catcccactt ctctttcagg 540
ttatctgctt aggctggtag gcatttgtgt ttataaacct tgaactcaag ctgctagatg 600
gtcagttgca ttgtgaactg aactatctga atgattttc attgtaaata tatagctatn 660
ggaccacttt aaatncccct ttct 684

<210> 297

<211> 1838
<212> DNA
<213> Homo sapiens

<400> 297
ccggcgtggg tccgggcaag aaccgcttgt rgtttggttt aaattctgca cgggaggacc 60
ttctgagttt acctgttggg ctcctggctg cgcaggcaca gcagctacac agaagagatg 120
ggagaagagg ctaatgatga caagaagcca accactaaat ttgaactaga gcgagaaaca 180
gaacttcgct ttgaggtgga ggcatctcag tcagttcagt tggagttgtt gactggcatg 240
gcagagatct ttggcacaga gctgacccga aacaagaaat tcacctttga tgctggtgcc 300
aaggtggctg ttttcacttg gcatggctgt tctgtgcaac tgagcggccg cactgaggtg 360
gcttatgtct ccaaggacac tcctatgttg ctttacctca acactcacac agccttggaa 420
cagatgcgga ggcaagcgga aaaggaagaa gagcgaggtc cccgagtgat ggtagtgggc 480
cccactgatg tgggcaagtc tacagtgtgt cgccttctgc tcaactacgc agtgcgtttg 540
ggccgccgtc ccacttatgt ggagctggat gtgggccagg gttctgtgtc catccctggt 600
accatggggg ccctctacat cgagcggcct gcagatgtcg aagagggttt ctctatccag 660
gcccctctgg tgtatcattt tggttccacc actcctggca ctaacatcaa gctttataat 720
aagattacat ctcgtttagc agatgtgttc aaccaaaggt gtgaggtgaa ccgaaggcat 780
ctgtgagtgg ctgtgtcatt aacacctgtg gctgggtcaa gggctctggt taccaggctc 840
tggtgcatgc agcctcagct tttgaggtgg atgtcgttgt tgttctggat caagaacgac 900
tgtacaatga actgaaacgg gactccccca ctttgtacgc actgtgctgc tccctaaatc 960
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gcaccaccta ctgagtgtta gcactgmcga gggtacagag gagaacctgt ccgagacaag 1260
tgtagctggc ttcattgtgg tgaccagtgt ggacctggag catcaggtgt ttactgttct 1320
gtctccagcc cctcgcccac tgcctaagaa cttccttctc atcatggata tccggttcat 1380
ggatctgaag tagagatcag caggaagcct tgctgcctgg gacatagaga tcatctggcc 1440
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tggactagta gaaagttcat attctacctc taaaaacagg tagtggtaac ctgactcttc 1560
taatcttgaa ccaaaaggaa aaccatgaga ctgtaattgg tttcttagac cacctaagat 1620
gccactttga attctctaag accctggaga attgcatttc tttcactgtg ctactatgtg 1680
gtttttaaaa aatcaatgct ttatattcca tatgtggttc ttacccattt atctaggatg 1740
aaagtgtgaa ttagagggac tccttccaat aaagttcaaa cttaaaaaaa atcattttaa 1800
taaatatttt tgccatatca taaaaaaaaa aaaaaaa 1838

<210> 298
<211> 1635
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1609)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1635)
<223> n equals a,t,g, or c

<400> 298
gcggaagtgc ttcgcggcgg aggcccgggc aactcttttg aatggaatcg ggctgattca 60
tcgccggttt gcagactgag ccgcgtcggg tgtgcgccgc tgctgctgtt gcctctgtct 120
tcgcgtcacc acagaggcaa gacaagggtc catatcgcgg catccggctc ccgcccgtct 180
tcaggagaga aagaaaaaat aaaatatact tggggaagtt gtacctgcca gaattagcaa 240
gagctttctt taagaagaca tttgtcaaac tcaacaaatt gaaggttaac accttaagag 300
ttgtagttac tgaccagaaa tatggacaga cttcttagac ttggaggagg tatgcctgga 360
ctgggccagg ggccacctac agatgctcct gcagtggaca cagcagaaca agtctatatc 420
tcttccctgg cactgttaaa aatgttaaaa catggccgtg ctggagttcc aatggaagtt 480
atgggtttga tgcttggaga atttgttgat gattataccg tcagagtgat tgatgtgttt 540
gctatgccac agtcaggaac aggtgtcagt gtggaggcag ttgatccagt gttccaagct 600
aaaatgttgg atatgttgaa gcagacagga aggccggaga tggttgttgg ttggtatcac 660
agtcaccctg gctttggttg ttggctttct ggtgtggata tcaacactca gcagagcttt 720
gaagccttgt cggagagagc tgtggcagtg gttgtggatc ccattcagag tgtaaaagga 780
aaggttgtta ttgatgcctt cagattgatc aatgctaata tgatggtctt aggacatgaa 840
ccaagacaaa caacttcgaa tctgggtcac ttaaacaagc catctatcca ggcattaatt 900
catggactaa acagacatta ttactccatt actattaact atcggaaaaa tgaactggaa 960
cagaagatgt tgctaaattt gcataagaag agttggatgg aaggtttgac acttcaggac 1020
tacagtgaac attgtaaaca caatgaatca gtggtaaaag agatgttgga attagccaag 1080
aattacaata aggctgtaga agaagaagat aagatgacac ctgaacagct ggcaataaag 1140
aatgttggca agcaggaccc caaacgtcat ttggaggaac atgtggatgt acttatgacc 1200
tcaaatattg tccagtgttt agcagctatg ttggatactg tcgtatttaa ataaagcaac 1260
gaaaaacgct attaatgatg ccttcagtgt atattcctct gttgttccta atgctcaaaa 1320
tcaagggacc tctgaaggtg tacttggcta aatgtaagac atctggcatc atttgcagca 1380
ctgtaacacc ttcagtctca gttgtgcaat tacttctgtt tctttagtca gggtctttgc 1440
agattctaaa gttatacatg aatacatcaa agtggacaaa ttttgttaag atcccattta 1500
atatttgaaa aaatcagtag cacaaatata ttttgattgt cacttacaaa ataaaataca 1560
tttacagtcw aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaana aaaaaaaaaa 1620
aaaaaaaaaa aaaan 1635

<210> 299
<211> 868
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (790)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (857)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (860)
<223> n equals a,t,g, or c

<400> 299
gctgaggggt agcgatgcgg gctccgggga tgaggtcgcg gccggcgggt cccgcgctgt 60
tgctgctgct gctcttcctc ggagcggccg agtcggtgcg tcgggcccag cctccgcgcc 120
gctacacccc agactggccg agcctggatt ctcggccgct gccggcctgg ttcgacgaag 180
ccaagttcgg ggtgttcatc cactggggcg tgttctcggt gcccgcctgg ggcagcgagt 240
ggttctggtg gcactggcag ggcgaggggc ggccgcagta ccagcgcttc atgcgcgaca 300
actacccgcc cggcttcagc tacgccgact tcggaccgca gttcactgcg cgcttcttcc 360
acccggagag tgggccgacc tcttccaggc cgcgggcgcc aagtatgtag ttttgacgac 420
aaagcatcac gaaggcttca caaactggcc gagtcctgtg tcttggaact ggaactccaa 480
agacgtgggg cctcatcggg atttggttgg tgaattggga acagctctcc ggaagaggaa 540
catccgctat ggactatacc actcactctt agagtggttc catccactct atctacttga 600
taagaaaaat ggcttcaaaa cacagcattt tgtcagtgca aaaacaatgc cagagctgta 660
cgaccttgtt aacagctata aacctgatct gatctggtct gatggggagt gggaatgtcc 720
tgatacttac tggaactcca caaattttct ttcatggsty tacaatgaca gccctgkcaa 780
ggtctctgtn gggtcgttga gggcaaggac cctgttttat tcaacctggg aactcagtgt 840
ttgccacatg tgaggcncan ggtagttc 868

<210> 300
<211> 547
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (526)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (542)
<223> n equals a,t,g, or c

<400> 300
ccacgacgtc cscggaacgc tsgttgacgg ggcctgagcc tctccgccgg cgcaggctct 60
gctcgcgcca gctcgctccc gcagccatgc ccaccaccat cgagcgggag ttcgaagagt 120
tggatactca gcgtcgctgg cagccgctgt acttggaaat tcgaaatgag tcccatgact 180
atcctcatag agtggccaag tttccagaaa acagaaatcg aaacagatac agagatgtaa 240
gcccatatga tcacagtcgt gttaaactgc aaaatgctga gaatgattat attaatgcca 300
gtttagttga catagaagag gcacaaagga gttacatctt aacacagggt ccacttccta 360
acacatgctg ccatttctgg cttatggttt ggcagcagaa gaccaaagca gttgtcatgc 420
tgaaccgcat tgtggagaaa gaatcgagtg gtgaaacaga acaatatctc actttcatta 480
tactacctgg ccagaatttg gagtcccttg aatcaaccag cttcanttct caatttcttg 540
gntaaag 547

<210> 301
<211> 865
<212> DNA
<213> Homo sapiens

<400> 301
ttagtagaga tggggtttca ccacattggc caggctggtc tcaaactcct gacctcaagt 60

gaatccacct accttggcct accgaggtgc tggaattaca ggtgtgagcc accgcgcctg 120
gcctaatact gctttattac aacgttatct gtgggtcgga atccttttat attggttaac 180
agatgaccct gactcagaat aatcttttc aatggctttt tgagggaagc ttgtgaagtt 240
ctggtgaatc ttctttttca cttcactttc agtgagctga aagtaaccaa actaaataca 300
tgtattgtgt aaagggacag gacaagacag ccttaaaaaa ttgaatatag ttggtgagac 360
aactcagaag tacaggtttg agcatccctt attcaaaatg cttgagaagt gttttgggtt 420
ctggaatatt tgcattaatg cttgccagtt gagcatccca ggtccggaaa tccacagtgc 480
tccaatgagc ctttcccctg agtgtcacat ctgtattggc actcaaaaag tttcatattt 540
tggagcattt cagatttcag atttgggatg cttcatctat attgacagct gcaagaacag 600
aaaggaagaa gagattattt ttgtgggaga acagtttctc ccatagtgtt tcctgtggaa 660
tgctagtgtc tcataaagtc ttcyaaaaaa aaraaaaaaa aatcaaatgt ttggaagcca 720
ttttgtgtta ctgtgtgact ttcttttact caaaaacagc accataaaat ttctgacaag 780
tactataggt aaagaaatcc ctttatactt aacctagtat tttctacctt tccccatcta 840
aaataaaatt tttataccac tttct 865

<210> 302
<211> 815
<212> DNA
<213> Homo sapiens

<400> 302
asaagcataa acataagcac aaacacaagc ataagcatga cagtaaagaa aaggacaagg 60
agcctttcac tttctccagc cctgccagtg gcagtctatt cgttctcctt ccctttcaga 120
ctgagaaggg gacaaaaaga cctttccttt catgtccaga agaatgtatg taactaaagc 180
tttgtcctct gtgaagaatt ataaaaggga gggggaaag gattcgcctc tcctacagaa 240
attctgaatt catttaagtt ctaagcattt gatttatgtt atttatacag ttgggatcta 300
attaggaaaa tgtgttttgt agttctggat aaactatttc atccgctgtt tcctccccaa 360
aacacacaca cagagcaaac tccctttcat aaaagccctc atatccactg gcagtccccg 420
ttcgcatcat ggtctccatg tgtaccgcca aagtcaatta tgtttgaaag cctttggtgg 480
atgttatggg gcaaagttat gatttacaca gaagcaactg ccaaatctgt ggtgcaacca 540
ctatctccag tgaaatattg tataacacca tttggaacta ctgaaaagac agtggctttt 600
ctacagtact cttccttatt gcaccatttt tgtattaacg tagaaactaa gcatcagaat 660
ttatgaacaa agaatatgtt atttttccyt ttgcyctaaa atactgagga tttggggaag 720
caattcyttt ttaaaaaaat tttggaataa ctaycttttg rtacacattc gggsggttac 780
ggtgttgggg atttaggcag gactatccaa atccc 815

<210> 303
<211> 1919
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1907)
<223> n equals a,t,g, or c

<400> 303
actgacagta cggtcggaat tcccgggtcg atccacgcgt ccgcggacgt ggsacaaaaa 60
cagatgctag gaagcttggc ttcctcttct tgttgaccct tttttgaacc aacatctttt 120
ttattatatt cagagtatgt ttttaagtgt atcttaatat atacattttt taggacatct 180
taaatctaaa caaaaaataa aatgaacatc tcttgaaacc tgttaaaaca accagttaaa 240

gccacagatg gctttcagcg cagtagcagc agaggccagt ggactctgag gactcctgag 300
gggcggggcg tgtagccagc caggtgcatg ccgggaccat ggccccccata cttggctgct 360
tcctgtgaca gtgaaataca tccttcaagg tggcagctgt tagggctgaa tcttctggag 420
aaaaaggtgc catctcagga gaatagcttt tactctggta ggaatgcttc cgagacacca 480
caaggcagcc tgaacactca gttgcagggt cgggcttgcg gtgggtgacc cagagccacc 540
aaagtcacat ccacaactaa tgagggaaat ctgtaaagcc agttagatag aagaatttta 600
tttttctgtg ggttttgtgt tgtctttttt atgttaaaaa gaaatccagt ttgtgttttt 660
ctatagraaa agtaaaagat caggttatac tttaggttag gggttctatt tattcctgtt 720
agtaaataaa attaacaaat ttctttgttt aacaaaagat taatctttaa accactaaaa 780
tacatagact gattgattat tcaacacatt ggaattgatg tcggtcatag tttcctgaag 840
catttagtta caacctgaag gaataaaatg atttgtggaa atgcttaaaa tagacctaac 900
tgaatacagt ctcatcttgc cgcgcctggc ttacctatct gtggaaagct aggcttccca 960
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taagcgattt gaaacactat ttttatatta aagtaaatgg catggagtat agtgcaaatt 1080
catttttaag atagaacaca aaacttgaaa gaagttttat gcgtgtgaca gtgtatgggg 1140
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agtgctcagt gaagtacacc tgtgtggccc agttctgaaa gctttataca gttgaatttt 1260
aagtggggtt gataacacct tggactgtta gtgttaaaaa tctagtgggt tgacctttaa 1320
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ttgagatttt cctccatttt tatttcttcg tgaacataga gtttggggcc gaaaatgttt 1440
ttaaagtatg tgtttgagtt aaatataaag ttggttcact tcaaagctaa aaaattgtta 1500
aacttgcagc ttggtattgc agagaagatt ttataagaat tttgctttag agaatgccac 1560
tttggctgaa ctacaagtgt aggccaccat tataatttat aaatacagca tacttcaaaa 1620
ctgtttgtta tctcttgtta ccatgtatgt ataaatggac cttttataac cttgttctct 1680
gcttgacaga ctcaagagaa actacccagg tattacacaa gccaaaatgg gagcaaggcc 1740
ttctctccag actatcgtaa cctggtgcct taccaagttg tgcttttctg ttttcaagtg 1800
taaatgatgt tgagcagaat gttgtacttg aaaatgctat aagtgagatg gtatgaaata 1860
aattctgact tatgaaaaaa aaaaaaaaaa agtcgacgcg gccgganatt tagtagtag 1919

<210> 304
<211> 157
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (112)
<223> n equals a,t,g, or c

<400> 304
aggtgtacac cctgcccagc cacaagccga tttttaaaag gtcaaatgct atgacagcca 60
ttttacagga aaaaaaaaaa ttgtatagtt gtggtgacgt tcctcacaca gngcaccagc 120
ttcagggagt ctgtcccttg cagacccctg aacccgg 157

<210> 305
<211> 343
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature

<222> (270)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (291)
<223> n equals a,t,g, or c

<400> 305
aatgcagtgt tttcgattac tgatctctca ttacccaact atctgatggc atcttcggtt 60
ggactgcttc ctacccagct tctgaattct tacttgggta ccaccctgcg gacaatggaa 120
gatgtcattg cagaacagag tkttagtgga tattttgttt tttgtttaca gattattata 180
agtataggcc tcatgtttta tgtagttcat cgagctcaag tggaattgaa tgcagctatt 240
gtagcttgtg aaatgggaac tggaaatctn ctctggttaa aaggcaatca nccaaatacc 300
agtgggctct ttcattctac aacaagagga ccctaacatt ttt 343

<210> 306
<211> 696
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (553)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (585)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (593)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (649)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (661)
<223> n equals a,t,g, or c

<400> 306
gaagcaggca ggttgctcag ctgcccccgg agcggttcct ccacctgagg cagactccac 60
gtcggctggc atgagccggc gcccctgcag ctgcgcccta cggccacccc gctgctcctg 120
cagcgccagc cccagcgcag tgacagccgc cgggcgccct cgaccctcgg atagttgtaa 180
agaagaaagt tctacccttt ctgtcaaaat gaagtgtgat tttaattgta accatgttca 240

ttccggactt aaactggtaa aacctgatga cattggaaga ctagtttcct acacccctgc 300
atatttggaa ggttcctgta aagactgcat taaagactat gaaaggctgt catgtattgg 360
gtcaccgatt gtgagcccta ggattgtaga acttgaaact gaaagcaagc gcttgcataa 420
caaggaaaat caacatgtgc aacagacact taatagtaca aatgaaatag aagcactaga 480
gaccagtaga ctttatgaag acagtgctat tcctcaattt ctctacaaag tggcctcagt 540
gaccatgaag aangtagcct tctggaggag aaattcggtg acagnctaca atnctggctg 600
gttacaaatc caaggcccag acccaatatt cccaacaaaa aacttttgnt tggccaggtc 660
nttcaatttt tgaaaaaaag tgggttttgg tttaac 696

<210> 307
<211> 396
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (394)
<223> n equals a,t,g, or c

<400> 307
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gaaacacttc aaatgcacat cctcacattt ctagtctacg tagctggaaa aaaaggacat 120
tyttaatatg ctaatgtgga ggtcacctag ttaccctaag ggagaaaagc aaggcaagga 180
cccactgcac agcaagttcc cccttggaag cccacgggcg cactgcccac aaatgcacat 240
aatctctgca gaaatacaaa agccctaatg ctggctgcac tggggacaca ggtaggagga 300
aattttcccc tgtaagcagt tttgaattct gaactatgtg gacagamcac caattttaaa 360
acaatgaaag tgagttggct gggcacatgg tttngc 396

<210> 308
<211> 549
<212> DNA
<213> Homo sapiens

<400> 308
agagacaggg ggcaagaagg ggtgtmaggg cccagtraca aaatcattgg ggtttgtagt 60
cccaacttgc tgctgtcacc accaaactca atcatttttt tcccttgtaa atgcccctcc 120
cccagctgct gccttcatat tgaaggtttt tgagttttgt ttttggtctt aatttttctc 180
cccgttccct ttttgtttct tcgttttgtt tttctaccgt ccttgtcata actttgtgtt 240
ggagggaacc tgtttcacta tggcctcctt tgcccaagtt gaaacagggg cccatcatca 300
tgtctgtttc cagaacagtg ccttggtcat cccacatccc cggaccccgc ctgggacccc 360
caagctgtgt cctatgaagg ggtgtggggt gaggtagtga aaagggcggt agttggtggt 420
ggaacccaga aacggacgcc ggtgcttgga ggggttctta aattatattt aaaaaagtaa 480
ctttttgtat aaataaaaga aaatgggacg tgwaaaaaaa aaaaaaaaaa aaaaactcga 540
gactagttc 549

<210> 309
<211> 1778
<212> DNA
<213> Homo sapiens

<220>

<221> misc feature
<222> (1704)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1744)
<223> n equals a,t,g, or c

<400> 309
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tttgctttat tttttctctt acatgaagta aagcgctttg gtcaaacaca caaaaatact 120
gccttgtact ggtggttggt ttcattagtg gatcacacac agtgttctac ttggcttgta 180
aaatggtgcc ttggataggg tgagtttgga taagtatgta tgtatgtatg agttatagca 240
aaattaagta gattgaatca agtccatgca aaagcaataa aacagtttta attttttaat 300
tttttaaaaa ttaaaacttt aataaaacag tttttaattt tttgctaggt tcttttaaaa 360
aatgatgtaa cttacatgga agtcttcaca ggactttttt ctttcctgga actattgaaa 420
tgtaatttag gatgatttga tcttccatct caagttgtca acatggctgt gtcattctgg 480
cttacatatg ttttatttaa caaaattcta gtcaagggat aagggcataa tgaagacaag 540
cttcagttat gaaagtacaa actatttgtg tgattaattt ttaaaaatga cattaagaag 600
cccattgtaa aataatattt gcagtcaaat ggttttcttt gctgtaagtc ctgttgtagc 660
tatgtttagg gtagtggttc tcatctacct tggagtgcat aagacttacc tagcaggctt 720
gtttaaaaag ttcagattcc tagctttgta cccagggatt gcctcaggtg gtatgggctg 780
tggtcctgga gtcatcactt ttataaatag tggttcagag accacagaga gagactgctt 840
catcgaatgg gaagtaccaa ggagaaagta caattcagta ttgtctggag gcaagtggac 900
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aatgatttgt taaaagtact gtctgctaga cccttgcctt tgagtggctt tgaaacttaa 1560
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tctgttttac tccaatttgt aagatcattt aatggaataa agatcacaac accaaaaaaa 1680
aaaaaaaagg gcgggccgct ctanaagatc caagcttacg tacgcgttgc atgcgacgtc 1740
atanctcttc tatagtgtca ctaaattcaa ttcactgg 1778

<210> 310
<211> 771
<212> DNA
<213> Homo sapiens

<400> 310
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acagtggttt gagaggctgg gagggttgag gggaagataa actttaaaa agctcttatc 120
tttcatttca atcagttaaa aatacttgct cagtgtaaca attttgcttc tcagcttcca 180
ctctaatatt gttgtgccat taagcaattt agctaatcct gacatttctt agattcataa 240

tgttaggagc atttaatctg tattttacaa gttaggaagc agaggatcag agatgggaaa 300
ggactagccc aaggccaaca ttaacaagcc ctctaacaaa aactttacaa tacatttatg 360
ttgaatggaa ctccaagatc tcacctctcc atccaggaat ggagtccatg taatcaaagt 420
gaacttaaaa ataggacagt ttcaacaagt caggagattc acagcaactg atcaaaggga 480
gtccagtcaa cgtgagcaag cgtgattatg atgaggaagc cccctctgct ttaatccaca 540
caaggaacgt aacctgaagt aacctgatgt taaccaatct gctgtgtcta ctatgctgtt 600
tccttgttcc tgctagtgct gctttacaaa tgcagaccat tctatcatac ctggcrgggc 660
ttctgtttta ttttgtaggc tggatgctac ccagttcatg aatcgctaat aaaagccaat 720
tagatcttta taaaaaaaaa aaaaaaaaat tactgcggcc gacaagggaa t 771

<210> 311
<211> 1419
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (21)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (26)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1005)
<223> n equals a,t,g, or c

<400> 311
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tatggagctg cctgttccga ggttgaaata gactgcctga cgggggatca taagaacatc 120
agaacagaca ttgtcatgga tgttggctgc agtataaatc cagccattga cataggccag 180
attgaaggtg catttattca aggcatggra ctttatacaa tagaggaact gaattattct 240
ccccagggca ttctgcacac tcgtggtcca gaccaatata aaatccctgc catctgtgac 300
atgcccacgg agttgcacat tgctttgttg cctccttctc aaaactcaaa tactctttat 360
tcatctaagg gtctgggaga gtcgggggtg ttcctggggt gttccgtgtt tttcgctatc 420
catgacgcag tgagtgcagc acgacaggag agaggcctgc atggaccctt gacccttaat 480
agtccactga ccccggagaa gattaggatg gcctgtgaag acaagttcac aaaaatgatt 540
ccgagagatg aacctggatc ctacgttcct tggaatgtac ccatctgaat caaatgcaaa 600
cttctggaga aaacagagtg cctcttccca gatggcaatc tgtcctatct ctgtgctgga 660
agatgctaga tctgaaagac agagtttcca cagttcagaa atcatcccac agtgttgctt 720
ttctatggag ctgatttaaa gtattccatt tagatttgat agatatgctt aagcaatcta 780
taaatcattt tcaatgttat aaacactaat tggtttcctc tagggtgata ttcgtcatta 840
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ccttcctctt gtcagaatga atatagacac tgtatctaag tgggaccaaa gaaaaaatag 1080
cgaactttca ccaaagtttt catgaaaacc caaaagcttt aaaagktact atcaagaaat 1140
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tgtaaccaga tacataaaga gctcttacaa ctcaataaaa ggcaagtaat ttaaaaatag 1260
gcaaaagaat tgctggatgg tatggtagtt ctatttttag ttttaccct aactactctg 1320
acttgatcat ttaacattct gtgtatgtaa caaaatatca catgcataaa tattatgtat 1380
caataaaatt ttttaatggg caaaaaaaaa aaaaaaaaa 1419

<210> 312
<211> 526
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (525)
<223> n equals a,t,g, or c

<400> 312
gggaagttca aagggaattt ttttattgtt tagcttgttt ttaggttgca gtaaattctc 60
taggtcatcc agcaggatta ggaagagaag cattgtgaga aacaggtttt gggttttgct 120
gaaatttgct tgtcagcatt gcatcacttt tccttaactg ttctctaagt actgatgtct 180
ttcaaattga ctcagakcat actccttatc tttgagcaga atattttgaa cagaaaawta 240
agccattttc atttatatac ctaattcaat aggtttataa ataaaagggc aaatcctcac 300
gaataataca gtacagtgaa aaattgctct ccccctagga actgaggaat agaaaaacaa 360
tttcctctta cattgtttat agtaggtagc ccttgaaaag aaaatcactt atccctgcca 420
cccccatggt cctcataaca agttagggaa actgaaattg ctggaaattt aggattctwa 480
ggcamcaggc wgggaaatag ggtcctcata cctgaccttt ttctnc 526

<210> 313
<211> 2435
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (15)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2408)
<223> n equals a,t,g, or c

<400> 313
ggcacgagcg cgaangacac ggcctgggcg ccgactgcag agccgggagg ctggtggtca 60
tgccggggtt cctggttcgc atcctccttc tgctgctggt tctgctgctt ctgggcccta 120
cgcgcggctt gcgcaatgcc acccagagga tgtttgaaat tgactatagc cgggactcct 180
tcctcaagga tggccagcca tttcgctaca tctcaggaag cattcactac tcccgtgtgc 240
cccgcttcta ctggaaggac cggctgctga agatgaagat ggctgggctg aacgccatcc 300
agacgtatgt gccctggaac tttcatgagc cctggccagg acagtaccag ttttctgagg 360
accatgatgt ggaatatttt cttcggctgg ctcatgagct gggactgctg gttatcctga 420
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gaggggctga cagcacagta acgtgcatac atatctgcag ggctggaatg gaagctttaa 2340
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actcaaanaa aaaaaaaaaa aaaaaaaaaa aaaaa 2435

<210> 314
<211> 2543
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (2538)
<223> n equals a,t,g, or c

<400> 314
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tctccctccc ttgcctcaga tttattgcta aacatgggtg cattttttgga taaacccaaa 120
actgaaaaac ataatgctca tggtgctggg aatggtttac gttatggcct gagcagcatg 180
caaggatgga gagtggaaat ggaagatgca cacacagctg ttgtaggtat tcctcacggc 240
ttggaagact ggtcattttt tgcagtttat gatggtcatg ctggatcccg agtggcaaat 300
tactgctcaa cacatttatt agaacacatc actactaacg aagactttag ggcagctgga 360
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tttttgaaaa ttgatgaata catgcgtaac ttttcagacc tcagaaacgg gatggacagg 480
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ggtgattcac gtgctgttct gtataggaat ggacaagtct gcttttctac ccaggatcac 600
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gttgatggca agggcccaac agaacaactt gtttctccag agcctgaggt ttatgraatt 780
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atgtagttgc ccttgtgnag gtt 2543

<210> 315
<211> 828
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (828)
<223> n equals a,t,g, or c

<400> 315
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ggctgtgtgt gctgggcctg gctcgcggcg aaccgagatg gcagagcagt cggacgaggc 120
cgtgaagtac tacaccctag aggagattca gaagcacaac cacagcaaga gcacctggct 180

gatcctgcac cacaaggtgt acgatttgac caaatttctg gaagagcatc ctggtgggga 240
agaagtttta agggaacaag ctggaggtga cgctactgag aactttgagg atgtcgggca 300
ctctacagat gccagggaaa tgtccaaaac attcatcatt ggggagctcc atccagatga 360
cagaccaaag ttaaacaagc ctccggaaac tcttatcact actattgatt ctagttccag 420
ttggtggacc aactgggtga tccctgccat ctctgcagtg gccgtcgcct tgatgtatcg 480
cctatacatg gcagaggact gaacacctcc tcagaagtca gcgcaggaag agcctgcttt 540
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aacaatgatt ttaatatatc tctttctttt tcttccgaca ttagaaacaa aacaaaaaga 660
actgtccttt ctgcgctcaa atttttcgag tgtgcctttt tattcatcta ctttattttg 720
atgtttcctt aatgtgtaat ttacttatta taagcatgat cttttaaaaa tatatttggc 780
ttttaaagta aaaaaaaaaa aaaaaagggg gccgccctaa agggtccn 828

<210> 316
<211> 1608
<212> DNA
<213> Homo sapiens

<400> 316
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tccggaattc ccgggtcgac ccacgcgtcc gaggaggaag ccgactgctg cctggtctgc 120
aaagaagtcc tttcaagtct ctaggactgg actcttccta agcaagtccg gaagcaccct 180
cactatgtgg ctctacctgg cggccttcgt gggcctgtac taccttctgc actggtaccg 240
ggagaggcag gtggtgagcc acctccaaga caagtatgtc tttatcacgg gctgtgactc 300
gggctttggg aacctgctgg ccagacagct ggatgcacga ggcttgarag tgctggctgc 360
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tgtcaatgtc tccagcattc tgggaagagt tgctttcttt gtaggaggct actgtgtctc 720
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gaaaatcagc atagttgaac ctggctactt cagaacggga atgacaaaca tgacacagtc 840
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aagaaatatg ttggtgtgtt tgtccttact tgaaatgggt ctgtattatg gtacttttaa 1560
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<210> 317
<211> 1057
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (958)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (966)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1035)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1053)
<223> n equals a,t,g, or c

<400> 317
ttaactcaaa ctctaaagtc ttgagtgttt caaagtcagt cgttacctgt ttaaaagcct 60
cagcctttag cttattcctc cttcaataca cgggaccttt ggttaatttg gggcaggaaa 120
actcttaaag taatctctct tgggcagagg ccttattgca ccagagggaa aaagtatata 180
cttcatttgc tgttactcca gttatgcctt aaattcattt gcttggtaat cctatcaacg 240
rgcactaact tcttagtata ctttaaacac ttagttgggt aacactgaga ttttgttgtc 300
ctttattttt tgctgagatg gagtcagtca gatgttagtc atagctaaca ccgaatttgt 360
gttgtcattt agacagttac tgattcgatc tgctttatat atgagaacgt atttttaact 420
attccaagaa ggaagaggta gctaaatgta atcccctctt cctatccccc cagaaaactg 480
aactgtaagt tctaggtaga ctaattggga gcagacacgg agttttagat gccttagcca 540
aacccagcag aaacctttca cacagccact catcgtaaga aacgcagatt tttctcttct 600
catgcttgtc tctggttccc tgcatttgta gtgacagaac tttcactagc aggatataaa 660
gaaagtaatt atgcttggag tccctcttta ctgggtttga gttaggtgca taacatggaa 720
aggagtggtg ccttcaaatg aatgtgacca ctccgtattg tggagtgact tccctagggc 780
atcctataca tcctaccaca gaaggccaag ggacagagca ccaacttcag tatccaagaa 840
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gccgtcttcc ttctggctta gcaggtgctg cagctgtact ctcgactcct gtctgtgnag 960
cgtganyagg gaaaatgagg agtggagtct atttccaaaa aaaaatgtgg atggagtttt 1020
ttccttaaag tggcnttcat tggcccaatt ccntttt 1057

<210> 318
<211> 1336
<212> DNA
<213> Homo sapiens

<400> 318
ccgtccggaa ttcccgggtc gacccacgcg tccgaaagaa aacttcctga agaacatgcc 60
agattttact ctgcagaaat cagtctagca ttaaattatc ttcatgagcg agggataatt 120
tatagagatt tgaaactgga caatgtatta ctggactctg aaggccacat taaactcact 180
gactacggca tgtgtaagga aggattacgg ccaggagata caaccagcac tttctgtggt 240
actcctaatt acattgctcc tgaaatttta agaggagaag attatggttt cagtgttgac 300

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gttgggagct ccgataaccc tgaccagaac acagaggatt atctcttcca agttattttg 420
gaaaaacaaa ttcgcatacc acgttctctg tctgtaaaag ctgcaagtgt tctgaagagt 480
tttcttaata aggaccctaa ggaacgattg ggttgtcatc ctcaaacagg atttgctgat 540
attcagggac acccgttctt ccgaaatgtt gattgggata tgatggagca aaaacaggtg 600
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taatataaaa tgcaacaact ttttatatta cctattagtt ttggagttct ttatgtttaa 1260
aaattcaggt gtaaatttta ttgccttgga taaataaatt attgatcctt tttaaggcag 1320
cagttattaa attggt                                                 1336
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<210> 319
<211> 496
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (433)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (439)
<223> n equals a,t,g, or c

<400> 319

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aattcggcas aggggcgctt ctgaaactca tctttcctga tggagcgttt gaaagtgaga 60
atcgagcatt gatcaatgtc caaatgctga acaattcagg attcgctagg ggaattattg 120
aagagttcca aaataataat gaccttgagt tacaacaaaa atgtattaat gtactaagca 180
catatgctat gattcaggga caaattgatg caaataagga gattgggcag ttcttcatac 240
aaactttaac acagttgaat gttcgccctg aaattttgat agaaatgaca aattcgcttt 300
tccaatttac ggggatgcct cttacggcta taatggaacc atwtttgtaa ggggtgggtt 360
tttatcyatt ctaaargacc cagttgtacc caatttgrgg cmgcmattcc aaatgggtgg 420
ttaaaaccaa atnccccganc twaargaagk tgccctggtt gctttactac gttgggtagt 480
ttcatcacta caaatg                                                 496
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<210> 320
<211> 1756
<212> DNA
<213> Homo sapiens

<220>

<221> misc feature
<222> (1718)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1721)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1733)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1750)
<223> n equals a,t,g, or c

<400> 320
gtcgacccac gcgtccgcgg cacgcgtggg ctgaattgcg cgtggtggcc atggcggcca 60
gcggggctgt ggaaccaggg cccccggggg ctgccgtcgc cccgtcgccc gccccggccc 120
cgccgcctgc ccctgatcac ctgttccggc ccatcagcgc cgaggacgag gagcagcakc 180
ccaccgagat cgagtcgcta tgcatgaact gttactgcaa tggcatgacg cgcctcctgc 240
tcaccaagat tcccttcttc agagaaataa tagtgagctc cttttcctgc gagcactgtg 300
gctggaacaa cacggagatc cagtcggcag gcaggatcca ggaccaggga gtgcgctaca 360
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ccacaaggat tcctgagcta gattttgaaa ttcctgcctt tagccagaaa ggagctctga 480
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agctaaagca agtagcctcc cctttcactc tgatcattga tgatccctca gggaacagtt 660
ttgtggaaaa cccacatgct cctcagaaag atgatgccct ggtgatcaca cactacaacc 720
ggacccgaca gcaggaagag wtgctggggc ttcaagaaga agcaccagca gagaagccag 780
aagaggaaga tctcagaaat gaagtgctcc mgttcagcac aaaytgccca gaatgcaatg 840
tccccgstca gaccaacatg aagctaatgg tggtcttgtt cgcctggaag tagatttcct 900
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cctttcacac tgggcgacag ttccaatcct ggacagacgg agagactaca ggagtttagc 1260
cagaagatgg accagatcat cgaaggtaac atgaaggccc actttattat ggatgatcca 1320
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tccagcgctg ctctttctgt aggttattta ttagtattgg atgaaggcga aggctgggag 1560
tgtctttccc accagccctt gcccatggtg ggaggacat ctggtctgag tcagagatct 1620
gtgcacactt tctaaacagc ttgtgatgca agtgtgagcc tattgtgtta cttgacctta 1680
ttttggaagt tttgaattgg cctaggagga aaccccnga nttcagcttg ggncttacca 1740
ggcttgactn gctcaa 1756

<210> 321
<211> 588
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (512)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (543)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (567)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (574)
<223> n equals a,t,g, or c

<400> 321
gggaggccga ggtgggagga tcactggagc tcgggagttc aagaccagcc tgggcaacat 60
agtgaaaccg tctccacaaa taatttttaa aaaattagcc aggcatggtg gtgccgcctg 120
tagtcccagc tactcaggag gcttgggtgg gaggattgcc tgagaccagg aggttgaggc 180
tgcagtgagc cgtgatttca ccaccactcc agcctgggtg agaaagcaag accctatatc 240
aatgaaaaaa aaaaaaaaaa aagaccagct ttgcagccag aagccagagg atacccaggg 300
acagtagggc tcccaggtgg ctggttctca gcacaccttc catgaatctg cttgctgctg 360
cttcagtgtg gtggccatcg tgctgtgtga caaaccaggg ctgttcacag yttcctcagc 420
cccccagaag gggagttgtt cagggaagag acattttagt ttcattttgc cttgcaattt 480
tctttcttcc ttgcaaggtt cttcggtggg anttcagttc accaaaacaa aaggcttaaa 540
ccngggtttt tttaaggaga gggtttntta aatnccettt tgcccgac 588

<210> 322
<211> 738
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (10)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (15)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (17)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (19)
<223> n equals a,t,g, or c

<400> 322
gacagtcacn gtacngnant cccggtcgac ccacgcgtmc gagaagcagg aattcctgaa 60
ttttatgact atgacgttgc cctgatcaag ctcaagaata agctgaaata tggccagact 120
atcaggccca tttgtctccc ctgcaccgag ggaacaactc gagctttgag gcttcctcca 180
actaccactt gccagcaaca aaaggaagag ctgctccctg cacaggatat caaagctctg 240
tttgtgtctg aggaggagaa aaagctgact cggaaggagg tctacatcaa gaatggggat 300
aagaaaggca gctgtgagag agatgctcaa tatgccccag gctatgacaa agtcaaggac 360
atctcagagg tggtcacccc tcggttcctt tgtactggag gagtgagtcc ctatgctgac 420
cccaatactt gcagaggtga ttctggcggc cccttgatag ttcacaagag aagtcgtttc 480
attcaagttg gtgtaatcag ctggggagta gtggatgtct gcaaaaacca gaagcggcaa 540
aagcaggtac ctgtcacgcc cgagactttc acatcaacct ctttcaagtg ctgccctggc 600
tgaaggagaa actccaagat gaggatttgg gttttctata aggggtttcc tgctggacag 660
gggcgtggga ttgaattaaa acagctgcga caacaaaaaa aaaaaaaaaa aaaaaaaaaa 720
aaaaaaaaag gggggggg 738

<210> 323
<211> 876
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (61)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (759)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (761)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (786)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (798)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (857)
<223> n equals a,t,g, or c

<400> 323
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ncgcgatcgg tgccgcggct tctgcaggga agtggctacg cgcgtccctc gggaaaagca 120
ggctttgcaa attggcagcc caagtytcag gggcctgtgc agtgactgat cattaccaac 180
atttcgaagt gagagatgtc acataaagag cgtcatttcg agcttctctt gaaaagttgt 240
aaggtgagct accctgggac tgtattcctg aatggcaatg tgatggcaga gtcctgcagt 300
attaccacct gaggacttgt gcaccagggt tcccacccac ccacttcagg cccttggttc 360
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ctctgtaacc ttccaatatc tttctccttc caggtactgt aaaccactta gtaattaatt 480
agttaataaa ttcatctcat cagcactttt aaaataatgt gctaggccac actgtcatgg 540
accccagata tacagcagca aacaaagcag ccatggtacc ttccctcagg gagcagtcag 600
tccagtggag gagtcagata tgactcacca cacagatcga aaaatctyca caaattatga 660
gaagaatgct gagggaagaa agaacatagg tggacccgct gctgagtcca ggcttacttg 720
cagagatcta tgctggccag gccctgtgct aggcagcana ngacatggaa taaaatcaaa 780
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gttttattaa tttccancct gtgagaaatt gggaac 876

<210> 324
<211> 1322
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (47)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1309)
<223> n equals a,t,g, or c

<400> 324
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cgctgcggcc gccgcggaat aataagccgg gatctaccat acccattgac taactatgga 120
agattatacc aaaatagaga aaattggaga aggtacctat ggagttgtgt ataagggtag 180
acacaaaact acaggtcaag tggtagccat gaaaaaaatc agactagaaa gtgaagagga 240
aggggttcct agtactgcaa ttcgggaaat ttctctatta aaggaacttc gtcatccaaa 300
tatagtcagt cttcaggatg tgcttatgca ggattccagg ttatatctca tctttgagtt 360
tctttccatg gatctgaaga aatacttgga ttctatccct cctggtcagt acatggattc 420
ttcacttgtt aagagttatt tataccaaat cctacagggg attgtgtttt gtcactctag 480

aagagttctt cacagagact taaaacctca aaatctcttg attgatgaca aaggaacaat 540
taaactggct gattttggcc ttgcagagct tttggaatac ctatcagagt atatacacat 600
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ct 1322

<210> 325
<211> 342
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (64)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (71)
<223> n equals a,t,g, or c

<400> 325
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acccaggagc tctagttctk gcccctactc tccaactcac ttccctcctc cactactcca 180
ggcaggttca gtcttcttgt tagtcccaga agctctgtgc tcatcccctc catccgagcc 240
tccatatgca ggttcctgca aagcttggtt atctgcagat ggaagcagcc aggactgaga 300
tcatagaatg ggacatacc agcctaggtc aagggaggca gt 342

<210> 326
<211> 3690
<212> DNA
<213> Homo sapiens

<400> 326
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cacgcgtggc ttttgggggc agaccccggc gggctgtggc aggagggcgg cggcggcggc 120
tgcggtcgaa gaaggggacg ccgacaagag ttgaagtatt gataacacca aggaactcta 180
tcacaatttg aaaagataag caaaagtttg atttccagac actacagaag aagtaaaaat 240
gcgtccaatg cgaatttttg tgaatgatga ccgccatgtg atggcaaagc attcttccgt 300
ttatccaaca caagaggagc tggaggcagt ccagaacatg gtgttcccac acggagcggg 360

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aagagcctcc attgtccctg accatccacc tgacatcccc tgttgtcaga gaagaaatgg 780
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<210> 327
<211> 719
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (446)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (701)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (709)
<223> n equals a,t,g, or c

<400> 327
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gcaccacgcc gggggcacg ctatacgcca ctaccccgg aggcaccagg atcatctacg 180
accgaaagtt cctgctggag tgcaagaact cacccattgc ccggacaccc ccctgctgcc 240
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tgaaggagca ggagacagag gaagagatac ccgatgacgc acaatttgaa atggacatct 360
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caccacctct tcctggggca tccaanagcc agctggcctc atctaatctg gaagggagtg 480
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accctctatg ctcaggggct ggaactgggg aatggagtaa gtcaccttct gactgcttag 660
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<210> 328
<211> 989
<212> DNA
<213> Homo sapiens

<220>
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<222> (176)
<223> n equals a,t,g, or c

<220>

<221> misc feature
<222> (943)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (968)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (982)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (984)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (986)
<223> n equals a,t,g, or c

<400> 328
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gcctaagtct ctgctgctca agccgcacca gagggagaag atgtccatgg aaatatccat 360
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gaggaaagcc ctgactgagc ctgaggcccg atactaccta cggcaaattg tgcttggctg 540
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gaatgaagat ctggaggtga aaataggga ttttggactg gcaaccaaag tcgaatatga 660
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gttagtgggc aaaccacctt ttgagacttc ttgcctaaaa gagacctacc tccggatcaa 840
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<210> 329
<211> 434
<212> DNA
<213> Homo sapiens

<400> 329
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atgctaaata aagtacttca aactaggaat gtaaacctta taaagaagac tgtattaagg 120

atgcccctgc atactattat tccgttgtta caagagctta caaagaggtt acaaggacat 180
cctaatagtg ctgtgctaat ggttcagtgg ctaaaatgtg tgttaacagt tcatgcatca 240
tacctgtcca cgttgcctga cctggtaccc cagctgggga cactctacca gttaatggaa 300
agcagagtca aaacttttca gaaactttca caccttcatg gaaagcttat tcttctaatt 360
acacaagtaa cagcatcaga gaagacaaag ggagcaactt cccctggaca gaaggcaaag 420
ttggtgtatg aagt 434

<210> 330
<211> 696
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (643)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (657)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (685)
<223> n equals a,t,g, or c

<400> 330
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ctcttccgct cccggcccgc ccactcgctc ccgcctggcg aggacggtcg tgttgagccc 180
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tggacctgtg gttcatacct tgtcaccacc cgggaagctg aaggccactt yctcccagat 480
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ggcctgcaag ccgcccgags ctycccagca gcctcctaca gagcaggaag agggcgccct 600
gttgaaccct gagtgtttgc aggcccagca gaccctgctg ttnccaagcg caccctngct 660
ttcgaacatt aacttcctta acttngggac agtagg 696

<210> 331
<211> 541
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (181)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (532)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (541)
<223> n equals a,t,g, or c

<400> 331
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cagcctgccc ggagaggacc tgagggcccg tkttagctac aggctgctgg gggtcatctc 120
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ngccaggaag gagtggaggc tgcaccgcgg cctgtytcac cgcaggcctc cttggaggag 240
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gccacgccct gcggccamct gttctgctgg gagtgcatca mcgcgtggtg cagcagcaag 360
gcggagtgtc ccctcctgcc gggagaaagt tccctcccca gaaagctcat ctaccttcgg 420
cactaccgct tgaaccggcg cccgggttgg gccttggaca caaattgaac tctacgggaa 480
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n 541

<210> 332
<211> 305
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (3)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (54)
<223> n equals a,t,g, or c

<400> 332
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aattt 305

<210> 333
<211> 445
<212> DNA
<213> Homo sapiens

<220>

<221> misc feature
<222> (14)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (409)
<223> n equals a,t,g, or c

<400> 333
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tggtgaatag agcccctsct aaggttgctc aggataaatc atttattaaa taggtctgct 180
tatcaggagg ggcgtgaagg ctcccaaaag gaaatgctgg cacctgggcc cagaagccag 240
ggccttytaa ctcctggggt tgatttcttc agtgaagttg caccctacaa agggaatatg 300
gccmaagcgg gcacttcaac tggaaggctg rtatcaggcg rttagacagc catggcattt 360
ctggcgttta gtctgggaat gggttggtag aggaggtggg acttatatng agggacttac 420
cagttccccg tttggatttt ggatg 445

<210> 334
<211> 317
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (100)
<223> n equals a,t,g, or c

<400> 334
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taaattttaa aagatgatgg actagactca agtatttttn aggactgtcc caatcataag 120
tctgaaggat ttcagtgctt atcataacat ttgacataca gttggcactt ggtaggtact 180
gaatcaatga ataggagtta ttggttgcct attcagaggc ttgtgggagt tgtcatcccc 240
attgcagaga gccagttggt gaatcagcaa ggtttccatt tatgctgctc ccctccaccc 300
agtcccctgg agggact 317

<210> 335
<211> 1524
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1440)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1441)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1511)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1523)
<223> n equals a,t,g, or c

<400> 335
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atctgtatta gccttgtgcc ttctcaattt ggaagtggaa actttgaaat ctgttgaatt 120
actggaaatt ctcttgctag ttaaaaaaca ttccaagatt aatgacactg agttcttcta 180
ctggagagag ttggtttcta aatgcctagc cgagtattct tctcctgaat gttgcaaacc 240
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ctactatagt gttcctgagc tgccaacgat acctgagggg ggttgttttg atgaaagtga 360
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gtgccaagat tgaatatgaa gaacccgagt gttgagatat agtttaagca atctggtggn 1440
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cttaagctaa ntgtttactg ggna 1524

<210> 336
<211> 306
<212> DNA
<213> Homo sapiens

<400> 336
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tccttatcag atattccttg acccccctat gttaagtgtc ttagccactc attgttaagc 180
caactgctaa aatcttagaa aaatatttca gccttctcct accccatccc ccaccccac 240
aagcttctag cttcttctac ctacagcaaa tgttaaaact ggtcagaagt tatattattt 300
actctg 306

<210> 337
<211> 291
<212> DNA
<213> Homo sapiens

<400> 337
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acctacctgg cctcaagaga aattattttc cagggcccaa cacattggtg ttttatcagc 120
acctaattga cctggggaaa gcagaatgcc taactccagc ctgtggtatt ttgttatggc 180
aggctgagca gactaataca gactttaata tacagactaa aagtaaaggg atggagaaag 240
ataccccctag tcaaaataaa gaaagtagtt atgttaatct aagacagagc t 291

<210> 338
<211> 1264
<212> DNA
<213> Homo sapiens

<400> 338
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gcccccagga gttggaaaaa caacattgat ccataaagcc agtgaggttt taaaatcctc 180
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<210> 339
<211> 759
<212> DNA
<213> Homo sapiens

<400> 339
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gatcaagaga ccatggaagt gtcagagatt cagaatccaa gattgtcttt aagttttcaa 720
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<210> 340
<211> 2639
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (37)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (52)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1651)
<223> n equals a,t,g, or c

<400> 340
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agacttcagt acgatgattg cagatgacat gtctaattat gatgaagaag gagcatggcc 120
tgttcttatt gatgactttg tggaatttgc acgccctcaa attgctggga caaaaagtac 180
aacagtgtag cactaaagga accttctaga atgtacatag tctgtacaat aaatacaaca 240
gaaaattgca cagtcaattt ctgctggctg gactgaactg aagatcaatc ctcacaattc 300
agactgaggg ttgagacaaa actttaagga tacatcttgg accatatcgt atttcattct 360
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cattgtggat ttcatcttat atctgtggac catcctagtt tattctccca taagtcttag 480
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<210> 341
<211> 1824
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1807)
<223> n equals a,t,g, or c

<400> 341
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ttaagtttgt ttatgtttga taaagaacac aatataaata caattttaag tctttgtaag 180
tgtttatgtt ggtataaatc tctgtgcatt gcttaaagtt tagaaataat agtagtttaa 240
aatacagagg tgccagccaa gccatactta ctcttccagt tgtcattggc caccctgaat 300
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<210> 342
<211> 4531
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (30)
<223> n equals a,t,g, or c

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ctccgtttcc ccctctcccc ctcctccgcc gaccgagcag tgacttaagc aacggagcgc 180
ggtgaagctc atttttctcc ttcctcgcag ccgcgccagg gagctcgcgg cgcgcggccc 240
ctgtcctccg gcccgagatg aatcctgcgg cagaagccga gttcaacatc ctcctggcca 300
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aggaaacagt attttatggg ttgcagtaca ttcttaataa gtacttaaaa ggtaaagtag 480
taaccaaaga gaaaatccag gaagccaaag atgtctacaa agaacatttc caagatgatg 540
tctttaatga aaagggatgg aactacattc ttgagaagta tgatgggcat cttccaatag 600
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<210> 343
<211> 584
<212> DNA
<213> Homo sapiens

<400> 343
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cccagagagc aaggtggctg aactatagtc tggaagccct caggtaaaga ggcacatctc 180
accactcatt ggttaaacaa tgcatcatag cgagcacttt tcctttccct ggagaatggg 240
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caaaaccatt gtgtcaggag tcaaacaaat gtttagaaag caaacatgac gtctctattg 480
tacaacctcc tttctcttgg ctgtttaaag gatgtacttc gtgtattaaa gggtacttta 540
tgttgaagta aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaa 584

<210> 344
<211> 778
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (35)
<223> n equals a,t,g, or c

<400> 344
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acggggtttc gccatgttgg tcagactggt cttgaactcc tgacctcagg tgatccgccc 120
gcctcagcct cccaacgtgc tgggattaca ggtgtgagcc accgtacctg gyagaaaatg 180
tactttcttt ctcagaaata cttttaaaaa aaattgaagg gtgaggagaa aaacatcttg 240
gagaagagga cccattaaaa ctttaaatat ctgtgggaac catttttcct gattttccct 300
tttttaacat catggcaaag atgggttttt ttccaacaaa atttaattta atatctttcc 360
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caacctgaaa taatttaaac tttatatgaa catttcgata agagtttgtg gatttttttct 480
gtagataata tatttgatcc rgaactcaag tgcatggaaa catgattttg atttttaaaa 540
tctaaaaaaa aaaaaaatta aaatcatgct tccctctatt gcagtatcag ttatttagtc 600
acagaatggt attttatgta aattaaaatt aggtgaatgc aatgcaggta actggttttg 660
gaatgggaat gtgcagtgct ttatgtttgg ggagttggag cagggtatct tttcatcaat 720
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<210> 345
<211> 3740
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (223)
<223> n equals a,t,g, or c

<400> 345
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cgggagcagt gatgttgggc aactctgcgc cggggcctgc gacccgcgar gcgggctcgg 300
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ctaccatgag gatattcaca cataccttag ggaaatggag gttaaatgta aacctaaagt 840
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<210> 346
<211> 446
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (376)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (408)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (427)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (442)
<223> n equals a,t,g, or c

<400> 346
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gacgtccagc gtgtccctca caggaaaggc ctccacccag ccagcaaatg cggcagggat 180
gcctggcttt gccaaagagt gaaagcctcc ccagtgggat ctgccgtagc gcacagggga 240
gcagacggag ccgcggcgca ggggcagcgg gacctcagcc accgctggag agagcggatg 300
ttctgaacgt ttcccctgga cgctgcctgc cacaccagtg gaagctgagt tcatgctgta 360

agacttggct gttcantgag tcattcgaga ttcacagaag cacttacntt gttcaccaga 420
ggacaantgg tgccggtgtt anccca 446

<210> 347
<211> 782
<212> DNA
<213> Homo sapiens

<220>
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<222> (769)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (772)
<223> n equals a,t,g, or c

<400> 347
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ggagtgaccc aggtagataa caagtccggt ttcctgcaga agaggcctca tcgccagcac 180
cctggcatcc taaagctgcc gcacgtgcgc tgccacaggc actggctaac ggtgcccagt 240
tattgctact tgggagcgct gggcccacta tggagaatca ggtgcaaaca ctgaccagtt 300
atctctggag cagacatttg cctgtagagc cagaggagtt gcaaagacgg gctaggcatc 360
ttgagaaaaa attcctggaa aacccagact tatctcagac agaggagaaa cttcgtggag 420
cagtgctaca cgcactacgt aaaactacct accattggca agaactgagc tacactgagg 480
gactgagcct ggtgtatatg gcagcaagac tggatggtgg ctttgcagca gtctccagag 540
cattccatga gatccgggct cgaaatccag catttcagcc acaaactttg atggactttg 600
gctcaggtac tggtctgtca cctgggctgs tcacagtatt tggggccaga gcctacgtga 660
atatatggtg tggacagata acttgcatgt ggtttgcaga aaactctgaa aggggtyaaa 720
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ta 782

<210> 348
<211> 439
<212> DNA
<213> Homo sapiens

<220>
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<222> (145)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (175)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<222> (369)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (420)
<223> n equals a,t,g, or c

<400> 348
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cctaaagtgc tgggattaca ggcatgagcc atgactccca gcctaatgtt cagaaatttt 120
gtgagctggc tgttgaacca taggnatctt taaattgtgg cagtattagt actgntacaa 180
atcagggttc acccttgtct gttgggtacc attttcccct cttgcctcct gttatattca 240
cattttctac aactggagaa ttgatgggat ctgaagggca aatgtatttt ctctttggcc 300
accgtggatt tcctgtactc tgtgtgtttt taatgaaaga gagtttgtga agcaacttac 360
agacatggnt tatttgaaag ctcttctgtt ttattaaaat agaggttcag aaagcagttn 420
tgtatttcat tcagagtcc                                              439
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<210> 349
<211> 2356
<212> DNA
<213> Homo sapiens

<400> 349
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gctcttggct gtggctctcc tgccatggac ctgcgcttct cgggcgctgc agcatctgga 120
cccgccggcg ccgctgccgt tggtgatctg gcatgggatg ggagacagct gttgcaatcc 180
cttaagcatg ggtgctatta aaaaaatggt ggagaagaaa atacctggaa tttacgtctt 240
atctttagag attgggaaga ccctgatgga ggacgtggag aacagcttct tcttgaatgt 300
caattcccaa gtaacaacag tgtgtcaggc acttgctaag gatcctaaat tgcagcaagg 360
ctacaatgct atgggattct cccagggagg ccaatttctg agggcagtgg ctcagagatg 420
cccttcacct cccatgatca atctgatctc ggttgggggga caacatcaag gtgtttttgg 480
actccctcga tgcccaggag agagctctca catctgtgac ttcatccgaa aaacactgaa 540
tgctggggcg tactccaaag ttgttcagga acgcctcgtg caagccgaat actggcatga 600
ccccataaag gaggatgtgt atcgcaacca cagcatcttc ttggcagata taaatcagga 660
gcggggtatc aatgagtcct acaagaaaaa cctgatggcc ctgaagaagt ttgtgatggt 720
gaaattcctc aatgattcca ttgtggaccc tgtagattcg gagtggtttg gattttacag 780
aagtggccaa gccaaggaaa ccattcccct acaggagacc tccctgtaca cacaggaccg 840
cctggggcta aaggaaatgg acaatgcagg acagctagtg tttctggcta cagaagggga 900
ccatcttcag ttgtctgaag aatggtttta tgcccacatc ataccattcc ttggatgaaa 960
cccgtatagt tcacaataga gctcagggag cccctaactc ttccaaacca catgggagac 1020
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taacatgccc tacttggaaa gatctaagat ctgaatctta tcctttgcca tcttctgtta 1140
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agtcttgcca tatttcaagc aaagaggtgc ccaggcctga ggtactcaca taaatgcttt 1380
gttttgctgg tgatttaacc agtgcttgga aaaatcttgc ttggctattt ctgcatcatt 1440
tcttaaggct gccttcctct ctgagtacgt tgccctctgt gctatcaatc atcttatcat 1500
caattattag acaaatccca ctggcctaca gtcttgcttc tgcagcaccc actttgtctc 1560
ctcaggtagt gatgaattag ttgctgtcac aaaaggaggg aagtagcacc caaattaaat 1620
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tgcttaagag aggaaatgta catcttgtat aacttaggga gcgaagaaaa tgtaggcgcg 1680
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taatatgact agtggtcttg atgctagagt caacttactc tgttgctggc tttagcagag 1800
aataggagga accatatgaa aaagatcagg ctttctgact tccatcccca aaacacattt 1860
accagcatac tccaaactgt ttctgatgtg ttccatgaga aaaggattgt ttgctcaaaa 1920
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ctaaggactc ctgagaattc ctgttacagt aaacaaaact aacgtaatct accatttcct 2040
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ttcaactaaa agatgaggat taagagcaag aagttggggg ggatgtgaaa ataattttat 2280
gaggttgtct aaaataaaga gtagtttctt aaaaaaaaaa agttgacgcc gccggatttt 2340
atgaagaagt attcgc 2356

<210> 350
<211> 1219
<212> DNA
<213> Homo sapiens

<400> 350
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gcctggccgg gacaccacat tctgtaacca gggaactgaa aacagaagag cttgttcaca 180
gcaggcaaac agcctcagat acaaaataac ttacagaagt tgcttgagaa tggtgactga 240
tcgaccagat tgcttgggcc atcggaatac ctcatgtttc cctttgaaga aggtgcttcc 300
tgaggcgttt tgtttgagtg caccctgctg gtcagaggtg caagcagatg agaatccaga 360
cattgcatgt ggaggtctcc agctcaggaa agtggggagg gaaataattt tggttcttgt 420
gcaataaaag ttgaccttga ctctctgagg aagattttgc tgcttttgcc tgaagaaaac 480
agacccatct ctggaggtct caggaagggc ccagcgaaca cactctcttg gataattacc 540
acgatggcgt cagcaaacac tccaccctgt gcctttttag tccttcccgc cctcctgcct 600
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caatgtggtc ctttcaagaa ttagccatga gtctcaaaaa ggcaataaat ggctctaagt 720
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ttaattggac tgattcttac ccagcccygg tcaagaatct gtgaggcatg tgactgaagt 960
actaaattaa acttattttg aaaccaaacc taatttttaa gccaaaaggt gtaatagtga 1020
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ttcaagcagg atgtctgtat tcagcattca ataatgctaa aatccctttc agcatgaaat 1140
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aaaaaaaaaa aactctgcc 1219

<210> 351
<211> 408
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (392)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (397)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (405)
<223> n equals a,t,g, or c

<400> 351
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atttgctttg gacatcagtg tgaagcagaa ctgatatgcc acttgaatta ataaaggaag 120
tcaatggggt gcctgaagtt cagccgctga gtaaattaca taaagtagat ttcggatccc 180
tacagccagg gttacaatta tagcaagaaa tatattcagg gaaaacttyc acttatctct 240
tctttaactt atcgtggaaa taaaacarct gttttgcaga ttggactaca argacaccat 300
tgcagtggct agatttattg ktttttttagc ttcttcatct acaagcagag atggtaaacc 360
ttgcatattt ttgaaaagca tttgaagacc tnaaatnaac tggtnatg 408

<210> 352
<211> 1283
<212> DNA
<213> Homo sapiens

<400> 352
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ccaccgaaaa ttactgacga gtcaatcacc tcagatctct caagcagtcc agcctacgca 120
acagtactcc acctctgcgc ctgtgcgggg agggtaaggc ggggccagca acttcctcag 180
ctggagggag agcgcacggt ggagccgcca gttgagaagg actctgatcc ggctcagctt 240
tccaatcagc tgcggaagga gccacgcttt cggggggttgc aagatggcgg ccaccagtgg 300
aactgatgag ccggtttccg gggagttggt gtctgtggca catgcgcttt ctctcccagc 360
agagtcgtat ggcaacgatc ctgacattga gatggcttgg gccatgagag caatgcagca 420
tgctgaagtc tattacaagc tgatttcatc agttgaccca cagttcctga aactcaccaa 480
agtagatgac caaatttact ctgagttccg gaaaaatttt gagaccctta ggatagatgt 540
gttggaccca gaagaactca agtcagaatc agccaaagag aagtggaggc cattctgctt 600
gaagtttaat gggattgttg aagacttcaa ctatggtact ttgctgcgac tagattgttc 660
tcagggctac actgaggaaa acaccatctt tgcccccagg atacaattct ttgccattga 720
aattgctcgg aaccgggaag gctataacaa agctgtttat atcagtgttc aggacaaaga 780
aggagagaaa ggagtcaaca atggaggaga aaaaagagct gacagtggag aagaagagaa 840
caccaagaat ggaggagaga aaggagctga tagtggagaa gaaaaagagg aaggaatcaa 900
cagagaagac aaaactgaca aaggaggaga aaaagggaaa gaagctgaca aagaaatcaa 960
caaaagtggt gaaaaagcta tgtaaggtat acagggaaca gcactctaga agctatgact 1020
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tctggtcatt cccttgtatg aactggtcta aagactgtta gtggggtgtt agttgatttt 1200
tcctggtata ctgtttcttg gctgacacta ctggtcaagt aagaaatttg taaataaatt 1260
tcttttggtt cttattatct aaa 1283

<210> 353
<211> 3229

<212> DNA
<213> Homo sapiens

<400> 353
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ccaccattcc ggaagtagaa tttagaggaa gaaaataccg gagttgcagg gtataggtaa 120
atttctcaag gttataggtt ggggttctta gaactttttg tggtgtgtgt tggcctagag 180
cgactcagaa gcgttagtga gcttcaccta aaaaagctaa cctctctgct gagcgcgacc 240
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ccgtgagatt ctccagacgg tatccaactg ttgaaaaacg agccagagtc ttcaatggag 480
caagttatgt gcctgttcct gaagatggtc cctttcttaa agcactgctc tttgaactta 540
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cgccactaat tagtgtcagt ggagtttcac aaggctttga atttcttttt gggatacagg 780
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tggtaaaaat tcaaaaggca ctctgtgagt agagagtatc atttaagctt attttagtca 2760
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aggaaaagct tagaaaagct gctaactcct cagaagaaag catgatagtt taaaggtata 3120
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<210> 354
<211> 506
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (470)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (505)
<223> n equals a,t,g, or c

<400> 354
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ccgtggtaaa ggtggaaaag gtttgggtaa gggaggrgct aagcgtcatc gcaaggtttt 120
gcgcgataac atccagggca tcactaagcc agctatccgg cgccttgctc gtcgcggcgg 180
tgtcaagcga atttctggcc ttatctatga ggagactcgy ggtgttctga aggtgttcct 240
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agcaatggat gtggtctacg cgctgaagcg acagggacgc actctttacg gcttcggtgg 360
ctaaggctcc tgcttgctgc actcttattt tcattttcaa mcaaargccc ttttcagggc 420
sgccamtttt ttcataaaag agcaagacat cttgktatcc tgctttggtn caaaattttg 480
ctgagaagaa gtactgggca catgng 506

<210> 355
<211> 742
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (80)
<223> n equals a,t,g, or c

<400> 355
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ggttttggca ggacaggttn tggttaccac ccaatgtcac gtggacagag ctagaagacc 120
gggaatggcc gtgtctaccc ccaccccag gacttgttgg cagccctgcc cctggcgctg 180
gtcctcctgg ccatgcgcct tgcctttgag aagattcatt ggcctgcccc tgagccggtg 240
gakgrgtgtg agggatcaga ccaggaggca agtgaagccc aacgccacgc tggagaaaca 300
cttcctcacg gaagggcaca ggccaaggag ccccagctgt ctctcctggc cgcccagtgt 360

ggcctcacgc tgcagcagac ccagcgatgg ttccggagac gccggaacca ggatcgaccc 420
cagctgacca agaagttctg tgaggccagc tggaggtttc tcttctacct gtcctccttc 480
gtgggcggcc tctcggtcct gtaccacgag tcatggctgt gggcaccagt aatgtgctgg 540
gacaggtacc caaaccagac tctgaagcca tccctgtamt ggtggtamct cttkggagct 600
gggtttctwa cytctcawtg yttaatcagg tgcctttgat gttcaagcgc aaggattttc 660
aaggagcagg tkgatacamc attttgkggc ggttcattcc tgattgaact tttcttaca 720
gttgccaact tgttgcggat tt 742

<210> 356
<211> 1695
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (24)
<223> n equals a,t,g, or c

<400> 356
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ttttccctcc tccccgccct cagggtccac ggccaccatg gcgtattagg ggcagcagtg 120
cctgcggcag cattggcctt tgcagcggcg gcagcagcac caggctctgc agcggcaacc 180
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caaagacacc ttcgaattaa gcacattcct cgattccagc aaagcaccgc aacatgaccg 300
aaatgagctt cctgagcagc gaggtgttgg tgggggactt gatgtccccc ttcgaccagt 360
cgggtttggg ggctgaagaa agcctaggtc tcttagatga ttacctggag gtggccaagc 420
acttcaaacc tcatgggttc tccagcgaca aggctaaggc gggctcctcc gaatggctgg 480
ctgtggatgg gttggtcagt ccctccaaca acagcaagga ggatgccttc tccgggacag 540
attggatgtt ggagaaaatg gatttgaagg agttcgactt ggatgccctg ttgggtatag 600
atgacctgga aaccatgcca gatgaccttc tgaccacgtt ggatgacact tgtgatctct 660
ttgccccccct agtccaggag actaataagc agcccccccca gacggtgaac ccaattggcc 720
atctcccaga aagtttaaca aaacccgacc aggttgcccc cttcaccttc ttacaacctc 780
ttccccttc cccaggggtc ctgtcctcca ctccagatca ttcctttagt ttagagctgg 840
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aaaaaaaaaa aaaaa 1695

<210> 357
<211> 928

<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (928)
<223> n equals a,t,g, or c

<400> 357
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gtagccgcca cccacatagt ataccccttg ctgcaaggat gggtgatgta tgtctcgctc 240
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atttactaca ttaattcggc agcctcgttc ttcgccttca tcgccacgct gctctacatt 480
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<210> 358
<211> 1374
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1360)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1374)
<223> n equals a,t,g, or c

<400> 358
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gctctgttgc ttcgaactcc agtggtcaga cctgctcata tctcagcatt tcttcaggac 180
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gatgccttgc agaaagctgc caaggcaggg cttttggcac tttcagcttt aacctttgct 480
gggctttgct atttcaacta tcacgatgtg ggcatctgca aagctgttgc catgctgtgg 540

aagctctgac ctttttgact tcatactttg aagaattgat gtatgcctct ttgcctctgc 600
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<210> 359
<211> 4152
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (65)
<223> n equals a,t,g, or c

<400> 359
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gatcatcaac acacccgtgg tgagcatcag cgtccatgat gatgaggagc ttctgccccg 540
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aaaaaaaaaa aa                                                     4152
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<210> 360
<211> 1156
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (49)
<223> n equals a,t,g, or c

<400> 360
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ggctaaggca agggggctgc gagcctgcag gggagagctg agggacacca tcctagactg 120
ggaggactcc ctgcccgacc gggacctggc actcgccgat gagccagcag gaacgccgac 180
ctgtccatca cgctgggtac atcgctgcag atccggccca gcgggaacct gccgmtggct 240
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catgctgacc tccgcatcca tggctacgtt gacgaggtca tgacccggct catgaagcac 360
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aaaaaaaaaa aaaaaa 1156

<210> 361
<211> 376
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (35)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (371)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (374)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (376)
<223> n equals a,t,g, or c

<400> 361
tgggaagtga tatttgggag ctaattgagg cctanggtga aaaaggaaat agcttcagat 60
waaaaytaga aagaagcttt ctgagaaact gctttgtgat rtgtgcattc atctcacaga 120
ggtaaatctt tcttttgatt cagcagtttg gaaacctggc taacatggtg aacccggtgt 180
ctactgaaaa tacaaaaaat tagccaggtg tggtggcaca atgctgtaat cccagctact 240
caggaggctg aggcaggaga atcgcttgaa cccgggaggt gggaggttac agtgagccaa 300
gtttgtgcca ctgcattcca gcctgggctt atagagtggg acttccgtct tcaaaaaaaa 360
aaaaaaaaaa nctngn 376

<210> 362
<211> 519
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (517)
<223> n equals a,t,g, or c

<400> 362
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gcatcttaag ttgcccctct gactgggcag ctttctcctg aacacagtga ggaatgctaa 120
gttacatggt ccagtaamtg agtggatacc ctgagccccc gcatccccact ggctgctatg 180
cagggataag tccatgcacc tgtggatggc agtggttgag ctggttctct ataaaagtat 240
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aatgttcttt cttccacaga aatctggcct agcagtctat tcttaaattg ctctttgtgt 360
gtaagacaca tctgtttgat accccactct gccctgactt ttaggcaaat ccgttaggac 420
aggaaccact atttctttc cttccctttg aatcatcttt taaagcagca gaggcaatgt 480
tkggcagagg tccacattgg gaaagttagt gcatcanga 519

<210> 363
<211> 1385
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1320)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1340)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1350)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1360)
<223> n equals a,t,g, or c

<400> 363
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gcctggcctg ggccggaccc ggtcagggtt ctcaagctgt cgtccctatg gggctgtgtt 120
ttccttgtcc cggggagtcc gcgcctccca cgccggacct ggaagagaaa agagcaaagc 180
ttgcagaggc tgcagagaga agacaaaaag aggctgcatc tcggggaatt ttagatgttc 240
aatctgtgca agaaaagaga aagaaaaagg aaaaaataga aaaacaaatt gctacatccg 300
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aatctactgc caataactgt ttattatctg caatcaagtg ggcttcatca atttaatttc 420
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gtttc 1385

<210> 364
<211> 977
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (6)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (25)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (962)
<223> n equals a,t,g, or c

<400> 364
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ttgggggaac actgtttttc ctgcatcatc ctgcatttgc tccccaagca atgtagaggt 180
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<210> 365
<211> 964
<212> DNA
<213> Homo sapiens

<400> 365
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attttacctt taaaaaaatg tcattggcac cataaataag gactgtgaga gactgtttaa 180
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cagcttgttc atccaagcca ctggctgagg tgttaggaag aggaagaggg tggtagagga 480
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agtttcactg aattgatcca agagtttagt gatttcaaaa gccttggtct caggagaaga 660
ttaaactttc atattgggca gtggttcact ttaaaacaca cacatacaca cacaaaacaa 720
ttttttaaga aatcctaata agtaacatac ccaaaatgct ctgtcttgag tcatgagaac 780
catcagttct tgatattgtc tagacttgca tctagagcta cgttgtaaaa ttcttttagg 840
catgtgttag atttctgtgt aaactttgtt taaatgtaaa cttcatacta cattgtcagt 900
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ccgg 964

<210> 366
<211> 1297
<212> DNA
<213> Homo sapiens

<400> 366
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ggagttcgag accagcctga ccaacatggc gaaaccccgt ctctactaaa aatacaaaaa 120

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aatcgcttaa acccaggagg cggaggttgc agtgagctga gatcatgcca ttgcactcca 240
gtctgggcga caggagcaag actctgtctc aaaaaaaaa atcattcttt ttagtcttag 300
cacctactta aggatccact tttagggctc acccacattt gtttctagat ttacccctgc 360
gctagagtaa gcactttatc tccagaactg agagcaaagt taacaaatct cacccttct 420
ctcctgcaaa ttagtggaca gactccctgg aacatgtttg ggcttccac ctagggccac 480
ctagtggtat ctctgggtct ttacttggtc agatgtttat tctacattgt tccccaggaa 540
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tctttactat gcactttagc ttataaagcc aattaaaaac gatgattgag aaaaaaaaaa 1260
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<210> 367
<211> 785
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (704)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (746)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (753)
<223> n equals a,t,g, or c

<400> 367
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gagcttttc agaagcgcga tcccaggaca cgtcgggaag caagcatccc cagagctgct 180
tggaaagagg accaaagacg tctaaaaagt catttggaaa tatctctaaa tatttgttac 240
catgtataag ctgctaaaga gaaattgggc ccaacaaaac taattgaata attgaggcag 300
atttgtgtgt atcatcaaat tctatccaga agttgaagaa tctgaattta aagattgtgt 360
gcatttaata agaggatgac ctttcagttt aatttcacta tagaagacca tctggaaaat 420
gaattaacac ccattagaga tggagctttg accctggatt cctcaaaaga gctgtcagtc 480
tcagaaagtc aaaaaggaga agagagggac agaaaatgtt ctgcagaaca atttgacttg 540
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cctcaggatc acttgtggga acataagtca atggaaaatg cagctccctc tcaagacaca 600
gacagtccac tcagtgcagc cagcagttca aggaacttgg gagccacatg ggaaaacagc 660
cctccttgag agctggccaa aggrgcmtgc tatgccttaa aggntttaaa gaagrtgttt 720
aggaaaatwa aagtycttag gaaacnttta ccngggtttt ccmgyctgtt taagttwttc 780
rgtta 785

<210> 368
<211> 920
<212> DNA
<213> Homo sapiens

<400> 368
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aagggtgata tttataaaac aaggggtggt ggacaatctg ttcagtttac tgatattgag 180
actttaaagc aagaatcacc aaatggtgtt ctgtggctgt ggagatgaga gcaggatccc 240
agctgggacc tggatatcag catcacgcac aacccaagcg caaaaagcca tgaactgaca 300
gtcccagtac tgaaagaaca ttttcatttg tgtggatgat ttctcgaaag ccatgccaga 360
agcagtcttc caggtcatct tgtagaactc cagctttgtt gaaaatcacg gacctcagct 420
acatcataca ctgacccaga gcaaagcttt ccctatggtt ccaaagacaa ctagtattca 480
acaaaccttg tatagtgtat gttttgccat atttaatatt aatagcagag gaagactcct 540
tttttcatca ctgtatgaat tttttataat gttttttttaa aatatatttc atgtatactt 600
ataaactaat tcacacaagt gtttgtctta gatgattaag gaagactata tctagatcat 660
gtctgatttt ttattgtgac ttctccagcc ctggtctgaa tttcttaagg ttttataaac 720
aaatgctgct atttattagc tgcaagaatg cactttagaa ctatttgaca attcagactt 780
tcaaaataaa gatgtaaatg actggccaat aataaccatt ttaggaaggt gttttgaatt 840
ctgtatgtat atattcactt tctgacattt agatatgcca aaagaattaa aatcaaaagc 900
actaagaaat amaaaaaaaa 920

<210> 369
<211> 834
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (533)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (831)
<223> n equals a,t,g, or c

<400> 369
cctagaacgc tttgcgtccc gacgcccgca ggtcctcgcg gtgcgcaccg tttgcgactt 60
ggtacttgga aaaatggaca aggattgtga aatgaaacgc accacactgg acagcccttt 120
ggggaagctg gagctgtctg gttgtgagca gggtctgcac gaaataaagc tcctgggcaa 180
ggggacgtct gcagctgatg ccgtggaggt cccagccccc gctgcggttc tcggaggtcc 240
ggagcccctg atgcagtgca cagcctggct gaatgcctat ttccaccagc ccgaggctat 300
cgaagagttc cccgtgccgg ctcttcacca tcccgttttc cagcaagagt cgttcaccag 360

acaggtgtta tggaagctgc tgaaggttgt gaaattcgga gaagtgattt cttaccagca 420
attagcagcc ctggcaggca accccaaagc cgcgcgagca gtgggaggag caatgagagg 480
caatcctgtc cccatcctca tcccgtgcca cagagtggtc tgcagcagcg ganccgtggg 540
caactactcc ggaggactgg ccgtgaagga atggcttctg gcccatgaag gccaccggtt 600
ggggaagcca ggcttgggag ggagctcagg tctggcaggg gcctggctca agggagcggg 660
agctacctcg ggctccccsc ctgctggccg aaactgagta tgtgcagtag gatggatgtt 720
tgagcgacac acacgtgtaa cactgcatcg gatgcggggc gtggaggcac cgctgtatta 780
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<210> 370
<211> 947
<212> DNA
<213> Homo sapiens

<400> 370
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aaaagaaaaa gctccctcag attgtgttac taggagtctc ttttgtgaca tttactgasc 180
tttctcccca atcttacctt cctattggct actttttaaa taaaaataaa cattttaggc 240
taatatgaca aaaatgagat aaaatcttaa aaacattgta ctagtgtaca gttactaaaa 300
tgtgcttact acaaaacagt aaaatatttc actctgtaaa tcatcactaa gtagttattc 360
tgtcctgttg attatgagcc tccaaaaatg tttaatgctt gamggatggt ttgggaggca 420
gggaatcctt wtcttaaaac ractktaatg aggcatatgt tacatatcat aaaacaccca 480
tktcaagtgt acatytcagt gattttagta acttccctca gtggtgtagc tgtarctatt 540
actcagttyt agawcatktt tatcccccca ataagatctt catgctcwkt tacagttaac 600
ctgtgcttac cccagcaaca ctaatctact tctctataaa ttgcctttct ggcagtcaat 660
catggaatca tcatagtggc cgtggtctgg cttgtactag aatgtttgag gttgtcagca 720
gtacgtctgg actgtcgata tgcggggaac ggtgtgtggc cattgctgcg ggcttacatg 780
gtcatctgtc tacgactcgc gtgctatgga cgtggtcaaa ccatcgggag cgtctccgcg 840
tcgagttttg cttgtgtagg ggcactggtg cagtttggtg ggagaggccg gtccccgggg 900
aaactctgga gactttgcga gagccgctct agcgcccccct ggtggct 947

<210> 371
<211> 2340
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (316)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2301)
<223> n equals a,t,g, or c

<400> 371
ggcacagcag gaactccagg ttctgctggc cgtggcatcc tctctccarg tctgctccct 60
taccggagct asgataasgt agcatgartg acacctgaga ttagaggctg ggctcactg 120
caggctgtgg agaggtcatg ctggtccaca ggaacacttg gcagtgctct cgtagacccc 180

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tcggtgatgt ggaatggaca ggtgcctcgc aagagagcaa gcacgttcat aacaaaacag 240
caacacaaag acatgttaag catgtttatt tatttgcctg tttttgtttt tttacttgag 300
ctgtggtcac agctgnccag gtacctaagc aagtcagttg ggtacagcag gacacgccac 360
cattccaggg tagctggtac cgccagaaac aggagtgggt cttgtcctgt tgcaggcaca 420
ctgcagtggt tttcctgcag ctctccaaca aacgcctgag tcacaggcca gagctgcctt 480
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gaaacatgct agaaaacgtg cctagagaag acacttcaac ctttgcctta tccaacccct 660
cttcagagaa aggtgtccca tggccccaaa aagaactgcc aagttttggt gaggagtaac 720
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cctggctaga gctgcaaaaa agggacacac cccacttcgg taaaagaaaa tagggaaagg 2220
ccataaacaa agacagactt gtagtttatt ttgtattttt tttaaataaa tacactttac 2280
attaaaaaaa aaaaaaaaaa ncgggagggg tggcctaaac caaaagttga agctaaacct 2340
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<210> 372
<211> 1575
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (58)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1492)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1548)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1556)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1559)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1565)
<223> n equals a,t,g, or c

<400> 372
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tggagcggcc ccaggacagg gacacgcccg tgcagaataa gcggaggcgg aggtgacccc 180
tcctgaggag cagcaggagg ctgaggaacc taaagcccgc gtcctccgct caaaatcact 240
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ctctaaggcc ttcctcctac agacagtaga cggaaagcac caagacctca agtacatctc 360
accagaaacg atggtggccc tattgacggg caagttcagc aacatcgtgg ataagtttgt 420
gattgtagac tgcagatacc cctatgaata tgaaggcggg cacatcaaga ctgcggtgaa 480
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ccctgagatg tatatcctga aaggcggcta caaggagttc ttccctcagc acccgaactt 720
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ccaanaaggg gaagg 1575

<210> 373

<211> 1878
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1717)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1764)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1771)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1773)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1810)
<223> n equals a,t,g, or c

<400> 373
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tacgcatagc tgctaaattc atcactcatg cacccccagg ggaatttaat gaagtattca 180
atgacgttcg gctactactt aataatgaca atctcctcag ggaaggggca gcacatgcat 240
ttgcccagta taacatggat cagttcacgc ctgtgaagat agaaggatat gaagatcagg 300
tcttaattac agagcacggt gacctgggta atagcagatt tttagatcca agaaacaaaa 360
tttcctttaa atttgaccac ttacggaaag aagcaagtga cccccagcca gaagaagcag 420
atggaggtct gaagtcttgg agagaatcct gtgacagtgc tttaagagcc tatgtgaaag 480
accattattc caacggcttc tgtactgttt atgctaaaac tatcgatggg caacagacta 540
ttattgcatg tattgaaagc caccagtttc agcctaaaaa cttctggaat ggtcgttgga 600
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targaaaagg caattttta accccyattt tattttnttt ttaaaaccat tttcaaggaa 1740
actggctgga ccgtactggt gggnattggt nangaagggt aattaaaaaa ctttggaaaa 1800
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<210> 374
<211> 846
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (703)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (747)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (786)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (797)
<223> n equals a,t,g, or c

<400> 374
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tctgggggaa gcttcgtgtg gacatcaagg cttacctggg ctcggccata cagctggtgt 180
cctgtctgtc ggagacgacg gtgttggcgg ccgtgctgcg gcacatcagc gtgctggtgc 240
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ggagcactgg ggaggagtct ctgcgggtgc tggctttcct ggtcctcagc agagtctgcc 360
ggcacaagaa ggacactttc cttggccccg tcctcaagca aatgtacatc acgtatgtga 420
ggaactgcaa gttcacctcg cctggtgccc tccccttcat cagtttcatg cagtggacct 480
tgacggagct gctggccctg gagccgggtg tggcctacca gcacgccttc ctctacatcc 540
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cgggccccag cgaagcctcc agcccttggt ctaacccccct tgncccaagt catcattggc 720
tgtatcaagc tcatccccaw tgcccgnttc taacccgctg cgaatgcamt gcatccgtgg 780

cctgangsyg cttctynggg gaagcttcgg ggggsctttc atcccggtgg ctggcctttc 840
aatcct 846

<210> 375
<211> 657
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (14)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (618)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (634)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (646)
<223> n equals a,t,g, or c

<400> 375
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accaaggatg agcagctgga aagcctattc cagaggactg cctgggtctt tgatgacaag 540
tmcaagarac ctggatatgg tgcctatgat gcatttaagc atgcagctya grmcccatct 600
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<210> 376
<211> 695
<212> DNA
<213> Homo sapiens

<220>
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<222> (39)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (56)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (103)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (647)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (653)
<223> n equals a,t,g, or c

<220>
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<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (680)
<223> n equals a,t,g, or c

<400> 376
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gagagtcagc taagggagat aggggtctat gaaggggtgg ggtcgtttta taagatttag 180
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caagktaatg tcatcagtta aggcaaggac tggccatttw crcttctttt gtggtggaat 360
gtcatcagtt aaggyrgggc agggcatwtt cacttctttt stgattcttc agttacttca 420
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<210> 377
<211> 3610
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature

<222> (29)
<223> n equals a,t,g, or c

<400> 377
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<210> 378
<211> 223
<212> DNA
<213> Homo sapiens

<220>
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<223> n equals a,t,g, or c

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<210> 379
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<212> DNA
<213> Homo sapiens

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<222> (171)
<223> n equals a,t,g, or c

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<211> 2550
<212> DNA
<213> Homo sapiens

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<210> 381
<211> 1268
<212> DNA
<213> Homo sapiens

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<222> (1259)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1262)
<223> n equals a,t,g, or c

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<210> 382
<211> 854
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature

<222> (794)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (807)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (817)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (835)
<223> n equals a,t,g, or c

<400> 382
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<211> 1091
<212> DNA
<213> Homo sapiens

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<210> 384
<211> 1029
<212> DNA
<213> Homo sapiens

<220>
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<222> (1014)
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<220>
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gattatgaat atggggtttt aaatattcat ctgactgcat atgatatgac cctggcagag 420
agttatgccc agtatgttca caacctctgc aactctctct ccattaaagt cgaggaaagt 480
tatgcaatgc caaccaaaac catagaagtg ttgcagttgc aggaccaagg cagcaaaatg 540
ctcctggact cagtgcttac cacccatgag cgagtggttc agatcagcgg tttgagtgct 600
acgtttgcag aaattttctt ggaaataatc caaagcagtc ttcctgaagg agtcagactg 660
tcagtgaagg agcacactga agaagacttc aagggacgat tcaaagctcg accagaactg 720
gaagaactgt tggccaagtt gaagtagcta ctgtagaccc tttcatgcca gcagtggtca 780
tattgagtgc caaagagaag agcttactgg gtagttagag ttcatcagga gacccaaccc 840
ttagatttca taagtaccca ttcccatagc cagtaatgtc ctcactcctc tgtggcttgg 900
ctgtacttgc catttcttac cacttaccta tgaggtaatg cttgttatct tccatctaat 960
aaaaatctgc tgcagatgtg taaaaaaaaa aaaaaaaaaa aaaaaagaaa aaannaaaaa 1020
aaaaanaag 1029

<210> 385

<211> 583
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (551)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (574)
<223> n equals a,t,g, or c

<400> 385
ccccgggtcg acccacgcgt ccgcccacgc gtccgcrcgg ccgactcgca agatggcgcc 60
gcagaaagac aggaagccca agaggtcaac ctggaggttt aatttggacc ttactcatcc 120
agtagaagat ggaatttttg attctggaaa ttttgagcaa tttctacggg agaaggttaa 180
agtcaatggc aaaactggaa atctcgggaa tgttgttcac attgaacgct tcaagaataa 240
aatcacagtt gtttctgaga aacagttctc taaaaggtat ttgaaatacc ttaccaagaa 300
ataccttaag aagaacaatc ttcgtgattg gcttcgagtg gttgcatctg acaaggagac 360
ctacgaactt cgttacttcc agattagtca agatgaagat gaatcagagt cggaggacta 420
ggcaaaggct ccccttacag ggctttgctt attaataaaa taaatgaagt atacatgaga 480
aataccaaga aattggcttt tagtttatca gtgaataaaa aatattatac tcttgaaaaa 540
aaaaaaaaaa nggcggccgt tttaaagatc cttnaggggc caa 583

<210> 386
<211> 2410
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (2167)
<223> n equals a,t,g, or c

<400> 386
tatacccacg cgtccgcgga cgcgtgggtc gctgggctca gcagtgaagc tgcggacctt 60
cgcggagaac tatcctatcc ctgaaccagg cccaaatgag gtcttgctga ggatgcattc 120
tgttggaatc tgtggctcag atgtccacta ctgggagtat ggtcgaattg ggaattttat 180
tgtgaaaaag cccatggtgc tgggacatga agcttcggga acagtcgaaa aagtgggatc 240
atcggtaaag cacctaaaac caggtgatcg tgttgccatc gagcctggtg ctccccgaga 300
aaatgatgaa ttctgcaaga tgggccgata caatctgtca ccttccatct tcttctgtgc 360
cacgcccccc gatgacggga acctctgccg gttctataag cacaatgcag ccttttgtta 420
caagcttcct gacaatgtca cctttgagga aggcgccctg atcgagccac tttctgtggg 480
gatccatgcc tgcaggagag gcggagttac cctgggacac aaggtccttg tgtgtggagc 540
tgggccaatc gggatggtca ctttgctcgt ggccaaagca atgggagcag ctcaagtagt 600
ggtgactgat ctgtctgcta cccgattgtc caaagccaag gagattgggg ctgatttagt 660
cctccagatc tccaaggaga gccctcagga aatcgccagg aaagtagaag gtcagctggg 720
gtgcaagccg gaagtcacca tcgagtgcac gggggcagag gcctccatcc aggcgggcat 780
ctacgccact cgctctggtg ggaccctcgt gcttgtgggg ctgggctctg agatgaccac 840

cgtaccccta ctgcatgcag ccatccggga ggtggatatc aagggcgtgt ttcgatactg 900
caacacgtgg ccagtggcga tttcgatgct tgcgtccaag tctgtgaatg taaaacccct 960
cgtcacccat aggtttcctc tggagaaagc tctggaggcc tttgaaacat ttaaaaaggg 1020
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ggaacttgta gccagaatgc cctgttcatg ctgagcaaag ttcagcaagt agagcagagt 1320
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tctggccctt gggtttcctg gttccactgc tactgaccca gaggggaatg agggctgagt 1440
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tcagcactgt ttgaagattg cctcttctac agcttctgag aattgtgtta tttcacttgc 1800
caagtgaagg accccctccc caacatgccc cascccaccc ctaagyaygg tcccttgtca 1860
ccaggcaacc aggaaactgc tacttgtgga cctcaccaga gaccaggagg gtttggttag 1920
ctcacaggac ttcccccacc ccagaagatt agcatcccat actagactca tactcaactc 1980
aactaggctc atactcaatt gatggttatt agacaattcc atttctttct ggttattata 2040
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tgatttctat gaacttgtct tattttaatg gtgggttttt tttctggtaa gattggacct 2160
aaatcgnatc atgcaactgt gacttgrcta tctcagatga gtatgtgcrt catcgtggct 2220
accttatctt attgcatgtg aagtagttag agctgttctg actggacgtt ccttggcggg 2280
gttgttgggg ggggatgtgt gtgaaaaata ttcggccgtt gggggttccg gccgctgcat 2340
ggcatcctac gcctcgtggg ggcccctttg agcgcgcggt ggcccgtctt ctcggtccaa 2400
ggccgcgccg 2410

<210> 387
<211> 689
<212> DNA
<213> Homo sapiens

<400> 387
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aaagctagtt tttgctatgt ggaacatgct gctctaattc agatttaaag agtttcttcc 120
tgttaattcg aagctcactg tgcctcttgt ttccgaggga agaaggactg attaagtcat 180
ctaaatggat gcaatactga attacaggtc agaagatact gaagattact acacattact 240
gggatgtgat gaactatctt cggttgaaca aatcctggca gaatttaaag tcagagctct 300
ggaatgtcac ccagacaagc atcctgaaaa ccccaaagct gtggagactt ttcagaaact 360
gcagaaggca aaggagattc tgaccaatga agagagtcga gcccgctatg accactggcg 420
aaggagccag atgtcgatgc cattccagca gtgggaagct ttgaatgact cagtgaagac 480
ggtgggtttc tcgctgggtg cgacgtgaat ttgtgaagct caggatgccc atggattaga 540
ctcatgtagt agcttaaaga gtcattaggc gataggaggg agaaaaccaa gaagttagca 600
gagtctggat ataattcagt gtccgtaaat cccatgaaga gaagctcatc agaataaagg 660
caatgaattt gtgcyaaaaa aaaaaaaaa 689

<210> 388
<211> 798
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (215)
<223> n equals a,t,g, or c

<400> 388
gctcgtgccg aattcggcac gagtgtaccc gagtttttga ttctcaacat gtccgagact 60
gctcctgccg ctcccgctgc cgcgcctcct gcggagaagg cccctgtaaa gaagaaggcg 120
gccaaaaagg ctgggggtac gcctcgtaag gcktccggtc cccggtgtc agagctcatc 180
accaaggctg tggccgcctc taaagagcgt aggangtttc tctggctgct ctgaaaaaag 240
cgttggctgc cgccggctat gatgtggaga aaaacaacag ccgtatcaaa cttggtctca 300
agagcctggt gagcaagggc actctggtgc aaacgaaagg caccggtgct tctggctcct 360
ttaaactcaa caagaaggca gcctccgggg aagccaagcc caaggttaaa aaggcgggcg 420
gaaccaaacc taagaagcca gttggggcag ccaagaagcc caagaaggcg gctggcggcg 480
caactccgaa gaagagcgct aagaaaacac cgaagaaagc gaagaagccg ccgcggccac 540
tgtaaccaag aaagtggcta agagcccaaa gaaggccaag gttgcgaagc ccaagaaagc 600
tgccaaaagt gctgctaagg ctgtgaagcc caaggccgct aagcccaagg ttgtcaagcc 660
taagaagcgg cgcccaagaa gaaatagcga acgcctactt ctaaaaccca aaargctctt 720
ttcagagcca ccactgatct caataaaaga gctggataat ttctttaaaa aaaaaaaaaa 780
aaaaaaaaaa aaaaaaaa 798

<210> 389
<211> 1691
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (436)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1575)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1630)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1636)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1651)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1664)
<223> n equals a,t,g, or c

<400> 389
atttgggcct tatatgtcaa gccctttggt ttccgtctta ttttaggggt tgttatgggg 60
scctgggtgg tcggcctcac atgggaaggg gatgggtagt ggatggggtt tctgttgtat 120
cttgtgggcg ggtaatttttg cttttgtttt tgttcacatt cttccccctc cacaagccaa 180
agtcgtttca tttggtttcc actgtgtgga ctgtgctgga gcttggcgcc tgccagaaaa 240
atttggggct aggcaagccc caggttgcag acatggtgaa gcagagaaac tgttcttctg 300
gttcctgcac aacctcagag gggcaaaaac cctccccagg aaggaggagg gtgttcagga 360
gccagacttt tggagagaag gcagctccca gcctgctggg tgaccgccat tctgcgtgtg 420
ttccccagct gggcanggct ggaagcctta cgtatgaagc atggagaagc agccattgtc 480
cccactatgg gcagaggggg gacccggctg gccccttggg tcagactgga gccaacaccg 540
ccagccaccc cctctggctg ctggcaatgc cacaggtgcc caagaagatg gaggatccct 600
gtgccaggag ccaacctggt sttcccgagg gtcagtgccc cagtgaagac agaagcgaga 660
gaataaagtt ccctgtaggt cctctgtcac ctttgggttg tgtttttcaa ttgttgacat 720
ttcagagggg accctccaga agcccagccg gcttcccccca aggactcccc cttcgctggg 780
agtggatttc cacacgtgcc tttgatttcg gacagattgg gcctcacagc caccgattca 840
gctgccaggg tccctggact gggggttggt gttttctata gaggaggaaa ggccctccct 900
caccctgctc cccacccagg cagggcagca tggacccag tgtctcagtg ccttcaaaac 960
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taaggtagaa tggaaaaaac ccagagagca aagtgcatta cttaaagatg cagtatatac 1380
ttttctcatt tttaaacagc acatatttat taagagaaaa aaagtaattt atgactattt 1440
aaaataaaat ttaaaagtag agtgactgtc aggtaaagaa ccttcaatgt agctatcttc 1500
caagggggaa gggcctgcag cctccgctcc tcaaatgtct gcactgaacc agttccagtc 1560
actaattgcg ccaancaagg ccaggaagga attcaaaaca tgttctggcc aagcacaaga 1620
acatccccan tgggantgga acacaatgct ncccaaaaac ctgnctttcc tggccttccc 1680
caacaactgg g 1691

<210> 390
<211> 454
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (425)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (444)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (451)
<223> n equals a,t,g, or c

<400> 390
gcgacggcgc tggcttgccc ggctgggaga gggcgtaagc aaaatgatgc ttcaacaccc 60
aggccaggtc tctgcctcgg aagtgagtgc ttctgccatc gtcccctgcc tgtcccctcc 120
tgggtcactg gtgtttgagg attttgctaa cctgacgccc tttgtcaagg aagagctgag 180
gtttgccatc cagaacaagc acctctgcca ccggatgtcc tctgcgctgg aatcagtcac 240
tgtcagcgac agacccctcg ggtgtccat cacaaaagcc gaggtagccc ctgaagaaga 300
tgaaaggaaa aagaggcgac gagaaagaaa taagattgca gctgcaaagt gccgaaacaa 360
gaagaaggag aagacggatg cctgcagaaa gtgagtgcct tctaacctta cccttctctc 420
gctangcctg tctttaccaa cttnatgtgg ntat 454

<210> 391
<211> 807
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (527)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (586)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (735)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (805)
<223> n equals a,t,g, or c

<400> 391
caagctctaa tacgactcac tatagggaaa gctggtacgc ctgcaggtac cggtccggaa 60
ttcccgggtc gacccacgcg tccgggcgga aaaccgaagt tggaagtgtc tcttagcagc 120
gcgcggagaa gaacggggag ccagcatcat ggcagaacag gatgtggaaa acgatctttt 180
ggattacgat gaagaggaag agccccaggc tcctcaagag agcacaccag ctccccctaa 240
gaaagacatc aagggatcct acgtttccat ccacagctct ggcttccggg actttctgct 300
gaagccggag ctcctgcggg ccatcgtgga ctgtggcttt gagcatcctt ctgaggtcca 360
gcatgagtgc attccccagg ccatcctggg catggacgtc ctgtgccagg ccaagtccgg 420
gatgggcaag acagcggtct tcgtgctggc caccctacag cagattgagc ctgtcaacgg 480
acaggtgacg gtcctggtca tgtgccacac gagggagctg gccttcnaga tcagcaagga 540

atatgagcgc ttttccaagt acatgcccag cgtcaaggtg rgtcyntcgg ccagactgga 600
ccaggcgcca cttggkttct gmagctttgk tagcctcggc tctggcccar ccagcattta 660
ccaagcttgg caagggcagc tgcctttgaa ggtttgcagt ggtttttgct ccttaaaagc 720
ctgattgaat tatgncatgg ctcccagggg cctgcgccag ttcccagcct ggggctgcct 780
ttgaaatggg aaccccggga aggcnct 807

<210> 392
<211> 927
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (916)
<223> n equals a,t,g, or c

<400> 392
ctgcagcggg agctggatga ggccacggag agcaacgakg ccatgggcgc gaggtgaacg 60
cactcaagag caagctcagg cgaggaaacg agacctcttt cgttccttct agaaggtctg 120
gaggacgtag agttattgaa aatgcagatg gttctgagga ggaaacggac actcgagacg 180
cagacttcaa tggaaccaag gccagtgaat aagcaacttt ctacagtttt gcaccacggc 240
aagaaaacca aaaaccaaaa caaacaaaca aaaaaaaccc aacaacaacc cagaacaaag 300
caaaacccag cagactgtac ttagcattgt ctaaatccat tctcaaattc caaatatcac 360
agacacccct cmcacaggaa acttcgcagt gatgcaccag gcgaggaaac gagacctctt 420
tcgttccttc tagaaggtct ggaggacgta gaagttattg aaaatgcaga tggttctgag 480
gaggaaacgg acactcgaga cgcagacttc aatggaacca aggccagtga ataagcaact 540
ttctacagtt ttgcaccacg gcaagaaaac caaaaaccaa aacaaacaaa caaaaaaaac 600
ccaacaacaa cccagaacaa agcaaaaccc agcagactgt acttagcatt gtctaaatcc 660
attctcaaat tccaaatatc acagacaccc ctcacacaag gaatataaaa accaccaccc 720
tccagcctgg gcaacgtagt aaaaacctca tctatacaag attttaaaaa taagctgggc 780
gtggtggtac acacctgtgg tcccagctac tagggaggct gagccaggaa gaacgstyca 840
gcccaggayt tcgrggctgc aatgagctat aattgcatca ttgcactcca gcctgggcaa 900
cagagaccct gttttnaacc accacca 927

<210> 393
<211> 1023
<212> DNA
<213> Homo sapiens

<400> 393
ggcacgagcc accacgaggc caccagggtg actgcgggat tccgatctgc gccggagctg 60
cgatgctaga gcactcttgc caccccccacc ccacggacgt gttgcagtga tatcagaatt 120
ttgcgtgcgg tttacccgtg tttaacctct ttgcgtctcg cttctgaatc gtatccactt 180
gagcatcact agactgatct attttaacac tggtgggggg cagcgaggac atggttttaa 240
actttaaaat gaaaatgtga aactaggaat gttgctgtga gacccccttgg acaaacagat 300
ttttgcactg gggatagaac ttgagcaatt tctgtcttgg cctcgccact gacgtccctt 360
ctttcctgtg gggacaggat ggacagattc ctggtgaaag gggctcaagg gggccttttg 420
aggaagcagg aggagcaaga gccaactgga gaagagccag ctgtgttggg aggagacaaa 480
gaaagcacaa ggaagaggcy caggagagag gccccaggga atggaggcca ctcagcaggc 540
cctagctggc ggcacattcg ggctgagggc ctggactgca gttacacagt cctgtttggc 600
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ataaagatgg ctgtgaccac atcggggagc accgagatga tgaaagagaa ctggcccctg 720
ggagccccat tgcctctgtc tccttcggtg cctgcagaga ctttgtcttc cggcataagg 780
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ggagcttact aatgatgaac cacccgacca acacgcactg gtaccacagt cttcccgtga 900
gaaagaaggt tctggctcca cgggtgaatc tgacttttcg taaaattttg cttactaaaa 960
aataaaaaca tttttaacag ttaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1020
aaa 1023

<210> 394
<211> 822
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (550)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (788)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (813)
<223> n equals a,t,g, or c

<400> 394
aaaaatttta aacaaagaaa ggaaaaaaat tgacaataaa agtcactctt ctaattgaat 60
atttttatat ttttatgaaa caaaagagca tttcttcagg tttctattgt atttttttta 120
acattcttgc agagaaagca agatccaaat tgattttggg atattaaaag ttaacagaac 180
actgaacaag gaaagaatgg catagatcta tctttacagt ctggagttaa ttcctgttaa 240
ctcattttat ccattcctta cataatcttc tttcctgtta gtccagtttg atggtgtgaa 300
tggtgaattt caggcccagt tgctaaattt tgtggcatct tcctctagtc cttcccacct 360
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ctttattttc cctggtagag acatcttcaa ggcatgaaat agcttaaaga gcagagtaga 480
aatggaagag gctttgcaaa aggctagata actaacaaca cctgggttgg ggcggcggcc 540
tcttctcttn cagctccctt agcttggctc cgtaagtgga tcacttgcca aatgctttag 600
atgattgcct ctcaataatt gaaaggtggt ggtagttgta ttctaaatga tgtagaaggt 660
taaaaataat tacattatgc ttctattcta tcatctaaaa cmaatcatta aaactaattt 720
ctagctaaat kgttaattat aattatgctc agaatctatt aatgagctct gctggcttac 780
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<210> 395
<211> 1702
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature

<222> (1694)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1696)
<223> n equals a,t,g, or c

<400> 395
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agtggaagaa ctgcaaaaca agattgtaaa ttgtctcaaa gaccacgtga ctttcaacaa 120
tggggggttg aaccgcccca attatttgts caaactgttg gggaagctcc cagaacttcg 180
taccctttgc acacaggggc tacagcgcat tttctacctg aaattggaag acttggtgcc 240
accgccagca ataattgaca aacttttcct ggacacttta cctttctaag acctcctccc 300
aagcacttca aaggaactgg aatgataatg gaaactgtca agaggggca agtcacatgg 360
gcagagatag ccgtgtgagc agtctcagct caagctgccc cccatttctg taaccctcct 420
agcccccttg atccctaaag aaaacaamca aacaaacaaa aactgttgct atttcctaac 480
ctgcaggcag aacctgaaag ggcattttgg ctccggggca tcctggattt agaacatgga 540
ctacacacaa tacagtggta taaacttttt attctcagtt taaaaatcag tttgttgttc 600
agaagaaaga ttgctataak gtataatggg aaatgtttgg ccatgcttgg ttgttgcagt 660
tcagacaaat gtaacacaca cacacataca cacacacaca cacacacaga gacacatctt 720
aaggggaccc acaagtattg cccyttaaca agacttcaaa gttttctgct gtaaagaaag 780
ctgtaatata tagtaaaact aaatgttgcg tgggtggcat gagttgaaga aggcaaaggc 840
ttgtaaattt acccaatgca gtttggcttt ttaaattatt ttgtgcctat ttatgaataa 900
atattacaaa ttctaaaaga taagtgtgtt tgcaaaaaaa araaaawaaa tacataaaaa 960
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tgtatgacag ttagagatgc tgattttttt tctgataaat tctttctttg agaaagacaa 1560
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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1680
aaaaaaaaag gggngnccgt tt 1702

<210> 396
<211> 858
<212> DNA
<213> Homo sapiens

<400> 396
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gccaagggag gggagcagcc tagttggtct tggagagatg gggaaggctt tcagctgatt 420
tgcagaagtt gcccatgtgg gccccagcca tcagggctgg ccgtggacgt gcccctgccc 480
actcacctgc ccgcctgccc gcccgcccgc atagcacttg cagacctgcc tgaacgcaca 540
tgacatagca cttgccgatc tgcgtgtgtc cagaaggtgc ccttggccga gcgccgaact 600
cgctcgccct ctagatgtcc aagtgccacg tgaactatgc aatttaaagg gttgacccac 660
actagacgaa actggactcg tacgactctt tttatatttt ttatacttga aatgaaatcc 720
tttgcttctt ttttaagcga atgattgctt ttaatgtttg cactgattta gttgcatgat 780
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<210> 397
<211> 1110
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (225)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (996)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1100)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1106)
<223> n equals a,t,g, or c

<400> 397
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cgctgctggt ggccgcctgc ctctgcctgg cggaggtggg catcaccttc tgggtcattc 180
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tcttcctcag tatcaacctc ctgctggccc agcgctgggg ctggggttgc tgctttttca 600
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ccttttcaac tccaatttca ttgggsatct ggtttcagsc gkttccttcc attaacagtt 1080
tttaaggttt gggtattttn caaaanattg 1110

<210> 398
<211> 864
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (823)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (830)
<223> n equals a,t,g, or c

<400> 398
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tcagtttcct catgttgtag tagcggacat ggcccggacc ggccsccgag accgccccgt 180
gcaacctcac cgccagcctg gggcctcag cgactgggac gggaccaagg ggctcgggga 240
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argccgggat gttcgtcctg gtggaaatgg tggacaccgt ccggatcccc ccttggcagt 360
ttgagaggaa gctcaacgac tccattgccg aggagctgaa caagaagttg gccaacaagg 420
tcgtgtacaa cgtgggactc tgcatttgtc tgtttgatat caccaaactg gaggatgcct 480
atgtattccc tggggatggc gcatcacaca ccaaagtcca ttttcgctgc gtggtgtttc 540
atccattcct agatgagatt ctcattggga agatcaaagg ctgcagccca gaaggagtgc 600
acgtctctct aggcttcttc gatgacattc tcatcccccc agagtcactg cagcagccag 660
ccaagttcga cgaagcggag caggtgtggg tgtgggagta cgagacggag gaaggagcac 720
acgacctcta catggacacc ggcgaggaga tccgcttccg ggtggtggac gagagctttg 780
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<210> 399
<211> 271
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (251)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (263)
<223> n equals a,t,g, or c

<400> 399
tggattttta taaggccaga catttacctc tggtaatctc ttgagccatg tgtttcattt 60
ttatgctcac agaataattt ggtgtaatgg ggcttatyaa cccaaatttc agaactttaa 120
attcatgtat ctttttctac actgatgact atactcaaag catcttactt taattatata 180
aatgtatata ctgtctttct caactggggt ttcaagagag aattaagccc aaaataaaat 240
aatttgtgtg ngcttatttt ctncattttt c 271

<210> 400
<211> 925
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (54)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (364)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (635)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (844)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (900)
<223> n equals a,t,g, or c

<400> 400
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cgggacaggg ggtctcggcc gtcggcgtca tggtttcgcg cgtgcagctc ccgcctgaga 120
tccagctggc tcagcgcctg gcggggaatg agcaggtgac ccgggaccgg gcggtgagga 180
agctccggaa atacatcgtc gccaggactc agcgggccgc agtggtttta cgcacgacga 240
gctgctgaag gtgtggaaag gactgtttta ttgcatgtgg atgcaggaca agccactcct 300
ccaggaagaa ttaggaagga ctatttccca gctcgttcat gcttttcaga ccacggaggc 360
gcanacctgt tccttcaggc cttctggcag accatgaatc gcgagtggac gggcattgac 420
aggctgcgct ggataaattc tacatgctca tgcggatggt cctgaacgag tccttgaagg 480
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ctgaratcct gcaccccagc agccaggccc ccaacggtgt gaagagccac ttcatcgaga 600
tcttcctgga ggagctgacc aaagtgggcg ccgangsagc ttacggcaga ccagaacctg 660
gaagttcatc gaccccttct gcagaatcgc tgcccggacc aaggattcct tggttttgaa 720

caacatcact cgaggcatct ttgagacgat tgtggagcag gccccgcttg ccattgaaga 780
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ttccatctgc agggctgaac ctgag 925

<210> 401
<211> 1085
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (774)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1080)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1085)
<223> n equals a,t,g, or c

<400> 401
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gtcttcctgg aagggtgcga taaggccggg cgaggtgcct gggatgcttc tcccсttccg 120
cgaggaagag atctaattgg gtagggcggg tgtagactag cctgccgagc cgcccgctgg 180
cacctgcagc ctcctgggcg cccgccgggc cccggcgaga aagttgttaa agggagcgag 240
gtggttgttc ctggggtccg aggcgcgcct ctcacgccct gcccaacaga agccgcagtc 300
ccgtggggtc tggagacgca gtttcctgtt aatgacaata aatccctgct cccсctgcct 360
cagacatcta cgcagcgaaa tcgagcctgg ccttgagggt ccacaccgcg agggaagatg 420
cgtgcgccca ttccagagcc taagcctgga gacctgattg aratttttcg ccctttctac 480
agacactggg ccatctatgt tggcgatgga tatgtggttc atctggcccc tccaagtgag 540
gtcgcaggag ctggtgcagc cagtgtcatg tccgccctga ctgacaaggc catcgtgaag 600
aaggaattgc tgtatgatgt ggccgggagt gacaagtacc aggtcaacaa caaacatgat 660
gacaagtact cgccgctgcc ctgcagcaaa atcatccagc gggcggagga gctggtgggg 720
caggaggtgc tctacaagct gaccagtgag aactgcgagc actttgtgaa tganctgcgc 780
tatggagtcg cccgcagtga ccaggtcaga gatgtcatca tcgctgcaag cgttgcagga 840
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caataactga aaaagactgt cctgtcagcg atgactttat acatcaaggg ggtcttgttt 960
tgctagagag tttggggttt ggtttgtgga tttcattgtg atttataata aggcttattt 1020
tcacagaata aaataaagca aaacgaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaan 1080
ggggn 1085

<210> 402
<211> 348
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (65)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (149)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (308)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (343)
<223> n equals a,t,g, or c

<400> 402
ctttccccaa cccccckggsc cgggggggttt gggcccgggg gcccccgggc ctttccttta 60
aaggnaaaac ccttwaaggg tttggggaaa ttcccccccc cccgggggggg gcccttttgcc 120
caaaggggaa aaattttccg ggggccaanc cggaaaggcc ccaaaaaagg ttccccccgg 180
ggaaggaatc cccggttgga attgttaaaa ccaaaagggg aattttgaag gccggaaatt 240
cgggttgccc cccaacttcc cccaacattc ccgggggggac ttgggggctg gaacgatgcc 300
ttgggagnct tcggcaagct tcgcaaggct ggttggtcag ctngcgca 348

<210> 403
<211> 1470
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (4)
<223> n equals a,t,g, or c

<400> 403
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tcggcagagg cagwgccggc gtgggcggcc ggccgaggcg gaggcgcagg aagggggckg 120
cgagtcgtgc gaggctgccc ttctcactca gcattatgga tccaagcctg ttgagagaaa 180
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caggctctaa acaaaattct gatcatagca atggatcatt taacttgaaa gctttgtcag 360
gaagctctgg atataagttt ggtgttcttg ctaagattgt gaattacatg aagacacggc 420
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aaattgaagt aatagatggg aagtatgctt tcaagcccaa gtacaacgtg agagataaga 600
aggccctact taggctctta gatcagcatg accagcgagg attaggagga attcttttag 660
aagacataga agaagcactg cccaattccc agaaagctgt caaggctttg ggggaccaga 720

tactatttgt aaatcgtccc gataagaaga aaatactttt cttcaatgat aagagctgtc 780
agttttctgt ggatgaagaa tttcagaaac tgtggaggag tgtcactgta gattccatgg 840
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aaaaaaaaaa aaaaaaaaaa aggggagggg 1470

<210> 404
<211> 2487
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (78)
<223> n equals a,t,g, or c

<400> 404
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agtggcagaa tgagcccaat ggggacagct agtggttcca acagtcctac ctcagattct 480
gcatctgtac agagagcaga cactagctta aacaactgtg aaggtgctgc tggcagcaca 540
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aataataaaa gccatgtaca gagggaaaaa aaaaaaaaaa aaaaaaaaac tcgagactag 2460
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<210> 405
<211> 1256
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1180)
<223> n equals a,t,g, or c

<400> 405

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agtttttgtt ccgctccgca gcgctcttcc cgggcaggag ccgtgaggct cggaggcggc 180
agcgcggtcc ccggccagga gcaagcgcgc cggcgtgagc ggcggcggca aaggctgtgg 240
ggaggggggct tcgcagatcc ccgagatgcc ggagttcctg gaagacccct cggtcctgac 300
aaaagacaag ttgaagagtg agttggtcgc caacaatgtg acgctgccgg ccggggagca 360
gcgcaaagac gtgtacgtcc agctctacct gcagcacytc acggctcgca accggccgcc 420
gctccccgcc ggcaccaaca gcaaggggcc cccggacttc tccagtgacg aagagcgcga 480
gcccaccccg gtcytcggct ctggggccgc cgccgcgggc cggagccgag caccgtcggc 540
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cctattgtgg gaacaaccag gaagctatat gagaaaaagc ttttgaaact gagggaacaa 720
ggaacagaat caagatcttc tactcctctg ccaacaattt cttcttcagc agaaaataca 780
aggcagaatg gaagtaatga ttctgacaga tacagtgaca atgaagaagg aaagaagaaa 840
gaacacaaga aagtgaagtc cactagggat attgttcctt tttctgaact tgggaactac 900
tccctctggt ggtgggattt tttcagggta tttcttttcc tgaaatctcc acccgtcctc 960
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ctgaaaggaa tttgtttatt tcatgcaagt ctagccatga taggtgttta gaggaaaagt 1140
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<210> 406

<211> 771
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (200)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (205)
<223> n equals a,t,g, or c

<400> 406
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ttcaaggggc tcctttattg agaatcaatg tcttctccta ggtaattgat caccctagac 120
ccagggacac ccaattcatc gtaatcatca tgaataatca aaaagtggta gctgtgctac 180
tgcaagagtg caagcaagtn ctggntcagc tcttgttgga agcgccagat gtgtcggaag 240
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<211> 2643
<212> DNA
<213> Homo sapiens

<400> 407
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tcatttcagg tgcagatgac cgtcttgtta aaatatggga ttatcagaat aaaacatgtg 180
tgcagacact ggaaggacat gcccaaaatg tgtcttgtgc cagctttcat cctgagttgc 240
caatcattat cacaggttca gaagatggaa cagtacgtat ttggcattca agcacctacc 300
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cactggcagt aaaggatatg ggcagttgtg aaatataccc tcagactatt cagcacaatc 600
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tgt 2643

<210> 408
<211> 1646
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (55)
<223> n equals a,t,g, or c

<400> 408
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aacagcaggt gcggccatcg cccagcacat ggatgttgac aaagttgcct tcaccggttc 180
caccgaggtg ggccacctga tccagaaagc agctggcgat tccaacctca agagagtcac 240
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cgtggagcag tgccacgaag ccctgttctt caacatgggc cagtgctgct gtgctggctc 360
ccggaccttc gtggaagaat ccatctacaa tgagtttctc gagagaaccg tggagaaagc 420
aaagcagagg aaagtgggga acccctttga gctggacacc cagcaggggc ctcaggtgga 480
caaggagcag tttgaacgag tcctaggcta catccagctt ggccagaagg agggcgcaaa 540
actcctctgt ggcggagagc gtttcgggga gcgtggtttc ttcatcaagc ctactgtctt 600

tggtggcgtg caggatgaca tgagaattgc caaagaggag atctttgggc ctgtgcagcc 660
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aggcaaagaa tatgcttaca tgattacacc tgtaaagtaa gcccaaacat yccaaatgtc 1560
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aaaaaaaaaa aaaaaaaaaa aaaaaa 1646

<210> 409
<211> 876
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (146)
<223> n equals a,t,g, or c

<400> 409
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tcaatccccc gtcctcctac actttnctct gtgagaaaga tccacctaca acctcaggtc 180
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cctgaaaact cccccactct ggtgccaact tggacaacac tcttttatgc actctttttt 600
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ttccctgact attcctggag tacagctaca tctcattgct gcccttcttc ccaatccaaa 720
gcctcctttg tgtcctctaa catccccaca atatcacccc ttaccacaag acctcccttc 780
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gagaaacatc gtccattctc tctccatacc accccc 876

<210> 410
<211> 1850
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1817)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1848)
<223> n equals a,t,g, or c

<400> 410
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cgctatggat gatcgagagg atctggtgta ccaggcgaas ctggccgagc aggctgagcg 180
atacgacgaa atggtggagt caatgaagaa agtagcaggg atggatgtgg agctgacagt 240
tgaagaaaga aacctcctat ctgttgcata taagaatgtg attggagcta gaagagcctc 300
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aaaaatgatt cgggaatatc ggcaaatggt tgagactgag ctaaagttaa tctgttgtga 420
cattctggat gtactggaca aacacctcat tccagcagct aacactggcg agtccaaggt 480
tttctattat aaaatgaaag gggactacca caggtatctg gcagaatttg ccacaggaaa 540
cgacaggaag gaggctgcgg agaacagcct agtggcttat aaagctgcta gtgatattgc 600
aatgacagaa cttccaccaa cgcatcctat tcgcttaggt cttgctctca atttttccgt 660
attctactac gaaattctta attcccctga ccgtgcctgc aggttggcaa aagcagcttt 720
tgatgatgca attgcagaac tggatacgct gagtgaagaa agctataagg actctacact 780
tatcatgcag ttgttacgtg ataatctgac actatggact tcagacatgc agggtgacgg 840
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tttgtactac tggatatctg actggagcca cagatacaga atctgtattg ttcttactga 1740
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aaaaaaaaac amggggnggg cccggtaccc attsccccta aagggggngg 1850

<210> 411
<211> 661
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (518)

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (567)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (568)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (648)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (660)
<223> n equals a,t,g, or c

<400> 411
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gtccggtggt tgactctgag gatctgcccc tgaaacatct cccgagaaat gctccagcag 120
agcaaaatct tgtaaagtca ttcgcaaaaa cattgttaag aagtgccttg agctcttctc 180
tgagctggca gaagacaagg agaattacaa gaaattctat gaggcattct ctaaaaatct 240
caagcttgga atccacgaag actccactaa ccgccgccgc ctgtctgagc tgctgcgcta 300
tcatacctcc cagtctggag atgagatgac atctctgtca gagtatgttt ctcgcatgaa 360
ggagacacag aagtccatct attacatcac tggtgagagc aaagagcagg tggccaactc 420
agcttttgtg garcgagtgc ggaaacgggg cttcsaagtg gtwtatatga mcgarcccat 480
tgacrartwc tgtgtgcagc arctcmagga atttgawngg aararmctgg tcycagttac 540
caaggaggtc tggarctgcc tgaggtnnag gagagaagaa gaagatggaa gagagcaagg 600
caagtttaga ccttgcagct ctgaagaatc ttagttaaag ttagaagngc atcccatagn 660
t 661

<210> 412
<211> 1263
<212> DNA
<213> Homo sapiens

<400> 412
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tctcagttca taggctatcc catcaccctt tatttggaga aggaacgaga gaaggaaatt 180
agtgatgatg aggcagagga agagaaaggt gagaaagaag aggaagataa agatgatgaa 240
gaaaagccca agatcgaaga tgtgggttca gatgaggagg atgacagcgg taaggataag 300
aagaagaaaa ctaagaagat caaagagaaa tacattgatc aggaagaact aaacaagacc 360
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aagagcctca ctaatgactg ggaagaccac ttggcagtca agcacttttc tgtagaaggt 480
cagttggaat tcagggcatt gctatttatt cctcgtcggg ctcccctttga ccttttttgag 540

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tgtgatgagt tgataccaga gtatctcaat tttatccgtg gtgtggttga ctctgaggat 660
ctgcccctga acatctcccg agaaatgctc cagcagagca aaatcttgaa agtcattcgc 720
aaaaacattg ttaagaagtg ccttgagctc ttctctgagc tggcagaaga caaggagaat 780
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gag                                                               1263
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<210> 413
<211> 1337
<212> DNA
<213> Homo sapiens

<400> 413

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ccggctctac tgccacctct tccagctcca ccgccggcgc acagggaaag gcaaaggcaa 120
aggcggctcg ggagattcag ccgtgaagca agtgcagata gatggccttg tggtattaaa 180
gataatcaaa cattatcaag aagaaggaca aggaactgaa gttgttcaag gagtgctttt 240
gggtctggtt gtagaagatc ggcttgaaat taccaactgc tttcctttcc ctcagcacac 300
agaggatgat gctgactttg atgaagtcca atatcagatg gaaatgatgc ggascttcgc 360
catgtaaaca ttgatcatct tcacgtgggc tggtatcagt ccacatacta tggctcattc 420
gttacccggg cactcctgga ctctcagttt agttaccagc atgccattga agaatctgtc 480
gttctcattt atgatcccat aaaaactgcc caaggatctc tctcactaaa ggcatacaga 540
ctgactccta aactgatgga agtttgtaaa gaaaaggatt tttcccctga agcattgaaa 600
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gaatacaaca actaagaaaa ggaagtttcc agaaaagaag ttaacatgaa ctcttgaagt 1140
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<210> 414
<211> 792
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature

<222> (744)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (783)
<223> n equals a,t,g, or c

<400> 414
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aagctactaa ccagagccgg ctctttctcg agattttatt ccctcaaagt tgcccccaaa 180
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actgtggaat gcctgcgggg tgatgttgat attctaatgg agttcctgct caatgtcacc 540
acagcaccag aatttcgtcg ttgggaagta gctgaccttc agcctcagct aaagattgac 600
aaagctgtgg cctttcagaa tccgcagact catgtcattg aaaatttgca tgcagcagct 660
taccggaatg ccttggctaa tcccttgkat tgtcctgact ataggattgg aaaagtgaca 720
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agnatcaata ga 792

<210> 415
<211> 1342
<212> DNA
<213> Homo sapiens

<220>
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<222> (1036)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1038)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1099)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1181)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<222> (1224)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1246)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1255)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1338)
<223> n equals a,t,g, or c

<400> 415
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tcgcttcccg gcgcggtcgc agccctcagc ccacttagga taatggcgac agctgaggta 180
ctgaacattg gtaaaaaatt atatgagggt aaaacaaaag aagtctacga attgttagac 240
agtccaggaa aagtcctcct gcagtccaag gaccagatta cagcaggaaa tgcagctaga 300
aaaaaccacc tggaaggaaa agctgcaatc tcaaataaaa tcaccagttg tatttttcag 360
ttattacagg aagcaggtat taaaactgcc ttcaccagaa aatgtgggga gacagctttc 420
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catgctacac aggctatatt tgaaatactg gagaaatcct ggttgcccca gaattgtaca 720
ctggttgata tgaagattga atttggtgtt gatgtaacca ccaaagaaat tgttcttgct 780
gatgttattg acaatgattc ctggagactc tggccatcag gagatcgaag ccaacagaaa 840
gacaaacagt cttatcggga cctcaaagaa gtaactcctg aagggctcca aatggtaaag 900
aaaaactttg agtgggttgc agagagagta gagttgcttt tgaaatcaga aagtcagtgc 960
agggttgtag tgttgatggg ctctacttct gatcttggtc actgtgaaaa aatcaagaag 1020
gcctgtggaa attttngnca ttccatggtg aacttcgagt aacatcctgc gccataaagg 1080
accagatgaa actcctgang atttaaagcc tgagtatgaa aggggatggc cattcctacc 1140
ggtaatttgg tggccagtgg ccaggcagaa ggttaatggg ntttggggac cagttgaatg 1200
gtcctgggga acacctgcca tatnccaggt tatccagcct gtcctncccc ttaanaccca 1260
gacctgggga attccaggat gttgtggtcc tccccttcga ctacccagtg gtcctggctg 1320
ttcaacccgt accttttncc ag 1342

<210> 416
<211> 1113
<212> DNA
<213> Homo sapiens

<400> 416
ggcatagccc ggctcggcct gtaaagcagt ctcaagcctg ccgcaggaga agatggcggt 60
cgccgtraga actttgcagg aacagctgga aaaggccaaa gagagtctta agaacgtgga 120

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (30)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (378)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (396)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (403)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (405)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (422)
<223> n equals a,t,g, or c

<400> 859
gggtcgaccc acgcgtccga aaaactgtnn gggagcttga caaaggcatg caggagagaa 60
caggagcagc cacagccagg agggagagcc ttccccaagc aaacaatcca gagcagctgt 120
gcaaacaacg gtgcataaat gaggcctcct ggaccatgaa gctagtcctg agctgcgtcc 180
cggagcccac ggtggtcatg gctgccagag cgctctgcat gctggggctg gtcctggcct 240
tgctgtcctc cagctctgcg agggagttac gtggggcctg tctgccaaac cagtgtgccg 300
tgccagccaa ggacagggtg gaattgcggc ttacccccat gttcaccccc aaggattgca 360
aaaaccgggg ttgctgcntt tgaattccag gatccnggat ggncntggtg ttttcaagcc 420
cntgccagga agcagaagca c 441

<210> 860
<211> 423
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (369)
<223> n equals a,t,g, or c

<222> (18)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (20)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (38)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (41)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (45)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (49)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (456)
<223> n equals a,t,g, or c

<400> 858
gaaaanacnn gaaccannan gaagaatcga aagagctntg ncagncttnc tcaaaaagtc 60
cgggaagctg aaagtccccg aatgggtgga taccgtcaag ctggccaagc acaaagagct 120
tgctccctac gatgagaact ggttctacac gcgagctgct tccacagcgc ggcacctgta 180
cctccggggt ggcgctgggg ttggctccat gaccaagatc tatgggggac gtcagagaaa 240
cggcgtcatg cccagccact tcagccgtgg ctccaagagt gtggcccgcc gggtcctcca 300
agccctggag gggctgaaaa tggtggaaaa ggaccaagat ggcggtcgca aactgacacc 360
tcagggacaa agagatctgg acagaatcgc cggacaggtg gcagcttcca acaagaagca 420
ttagaacaaa ccatgctggg gtaataaatt ggcctnattc gtaaaaa 467

<210> 859
<211> 441
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (29)

<221> misc feature
<222> (368)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (389)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (440)
<223> n equals a,t,g, or c

<400> 857
ggcacgagtg gggccgtctt cctcatcctt ccttttctc ggggctcccg tggagccacc 60
tggacatgag acccgccctc aatgccgaag cctctcggaa gcaatctttc gggacggaag 120
ttaagtagcc ccgagcggga ggctgtggcg gaagtggtcg cgttaccgck tgtttgtgcg 180
catgcgccac tctcgtctgg ccgccgcgct ttcaggaggt gcttttggtt ctctccggtc 240
ttgtccacgc taggggggtgc acgtackccc aactgtggtc gcgctctcac cccttctgct 300
gckctcgtgg ccccctcgcg atggcgggca tcctgtttga ggatattttc gatgtgaagg 360
atattgancc ggaaggcaag aagtttganc gagtgtctcg ackgcattgt gagagtgaay 420
ttycaagatg gvwbkaaacn aagakgtaaa 450

<210> 858
<211> 467
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (6)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (9)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (10)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (17)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (339)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (529)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (537)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (555)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (575)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (599)
<223> n equals a,t,g, or c

<400> 856
gggcatcttt cgggacaatt ggcacaagcg ccgcaaaacc gggggcaaga gaaagcccta 60
ccacaagaag cggaagtatg agttggggcg cccagctgcc aacaccaaga ttggcccccg 120
ccgcatccac acagtccgtg tgcggggagg taacaagaaa taccgtgccc tgaggttgga 180
cgtggggaat ttctcctggg gctcagagtg ttgtactcgt aaaacaagga tcatcgatgt 240
tgtctacaat gcatctaata acgagctggn tcgtaccaag accctggtga agaattgcat 300
cgngctcatc gacagcacac cgtaccgaca gtggtaccna gtcccactat gcgctgcccc 360
tggcccgcaa gaagggagcc aagctgactc ctgaggaaga agagatttta aacaaaaaac 420
gatctaaaaa aattcagaag aaatatgatg aaagggaaaa agaatgccaa aatcaagcaa 480
gtcttctgga ggagcagttt cagcagggca agcttcttgc gtgcatcgnt ttaaggnccg 540
gacagtgtgg ccgancagat ggctatgtgc taaanggcaa agagtggagt ctatcttang 600
aaaacaag 608

<210> 857
<211> 450
<212> DNA
<213> Homo sapiens

<220>

<222> (288)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (345)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (377)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (382)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (402)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (422)
<223> n equals a,t,g, or c

<400> 855
gggtcgaccc acgcgtccgc tatgacacca agggtcgctt tgctgtacat cgtattacac 60
ctgaggaggc caagtacaag ttgtgcaaag tgagaaagat ctttgtgggc acaaaaggaa 120
tccctcatct ggtgactcat gatgcccgca ccatccgcta ccccgatccc ctcatcaagg 180
tgaatgatac cattcagatt gatttggaga ctggcaagat tactgatttc atcaagttcg 240
acactggtaa cctgtgtatg gtgactggag gtgctaacta gggaagantg gtgtgatcac 300
caacagagag aggcaccctg ggatcttttg gacgtgggtt cactngaaag atggccaatg 360
ggaacagctt tgccaantcg antttccaa catttttgtt anttgggcaa ggggcaacaa 420
anca 424

<210> 856
<211> 608
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (270)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (303)

<222> (127)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (128)
<223> n equals a,t,g, or c

<400> 853
ctcgtgccga attcggcacg agccgccatc atgggtcgca tgcatgctcc cgggaagggc 60
ctgtcccagt cggctttacc ctatcgacgc agcgtcccca cttggttgaa gttgacatct 120
gacgannnga aggagcagat ttacaaactg gccaagaagg gccttactcc ttcacagatc 180
ggtgtaatcc tgagagattc acatggtgtt gcacaagtac gttttgtgac aggcaataaa 240
attttaagaa ttcttaagtc taagggactt gctcctga 278

<210> 854
<211> 408
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (5)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (9)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (104)
<223> n equals a,t,g, or c

<400> 854
gcggnacgnt ggaccggggt ccttccgtgc gcgttgatat gattggccgg cgaatcgtgg 60
ttctcttttc ctccttggct gtctgaagat agatcgccat cgtnaacgac accgtaacta 120
tccgcactag aaagttcatg accaaccgac tacttcagag gaaacaaatg gtcattgatg 180
tccttcaccc cgggaaggcg acagtgccta agacagaaat tcgggaaaaa ctagccaaaa 240
tgtacaagac cacaccggat gtcatctttg tatttggatt cagaactcat tttggtggtg 300
gcaagacaac tggctttggc atgatttatg attccctgga ttatgcaaag aaaaatgaac 360
ccaaacatag acttgcaaga catggcctgt atgagaagaa aaagacct 408

<210> 855
<211> 424
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature

<220>
<221> misc feature
<222> (317)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (372)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (399)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (404)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (411)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (418)
<223> n equals a,t,g, or c

<400> 852
gcggacgcgt gtntcgaccc acgcgtccgg ncgagncgcg cggaggcgga ggcttgggtg 60
cgttcaagat tcagcttcac ncgnaagcca cnggcatggc ngaggaaggc attgctgctg 120
gaggtgtaat ggacgttaat actgctttac aagaggttct gaagactgcc ctcatncacg 180
atggcctagc acgaggaatt cgcgaagctg ccaaagcctt agacaagcgc caagcccatc 240
tttgtgngct tgcatccaac tgngatgagc ctatgtatgn caagntggng gaggcccttt 300
gngctgaaca ccaaatnaac ctaattaagg gttgatgaca acaagaaact aggagaatgg 360
gtaggccttt gnaaaaatga cagagagggg aaacccсgna aagnggttgg nttgcagntg 420

<210> 853
<211> 278
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (126)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<220>
<221> misc feature
<222> (84)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (92)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (101)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (176)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (247)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (263)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (280)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (285)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (289)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (302)
<223> n equals a,t,g, or c

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (348)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (362)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (364)
<223> n equals a,t,g, or c

<400> 851
gctgcgagaa gacgacagaa aaaaaaaaaa aaaaaaaaaa agcgcggccg ctgtcgagaa 60
gacgacagan gggggccccg gaagataagg ccgntcgctg acgccgtgtt tcctctttcg 120
gccgcgctgg tgaacaggac ccgtcgccat gggccgtgtg atccgtggac agangaaggg 180
cgccgggtct gtgttccgcg cgcacgtgaa gcaccgtaaa ggcgctgcgc gctgcgcgcc 240
gtggatttcg ctgagcggaa cggctacatc aagggcatcg tcaaggacat catccacgac 300
ccgggccgcg gcncgcccct cgccaaggtg gtcttccggg atccgtancg tttaagaagc 360
gngncggagc tgttcattgc cgccgagggc attcacacgg gccagtttgt gtattgccgc 420
aaaaaggccc 430

<210> 852
<211> 420
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (13)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (31)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (36)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (81)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (11)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (36)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (47)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (75)
<223> n equals a,t,g, or c

<400> 850
gacantaaga ngggaacaaa aaaacatgga acatgnacac agcaggntgg caggcacagc 60
atcataggaa ctagntggat cccccagggc tgcaggaatt cggcacgagg ccgaaaggaa 120
agaaggccaa gggaaagccc agctgtcgtg aagaagcagg aggctaagaa agtggtgaat 180
cccctgtttg aagcctaaga attttggcat tggacaggac atccagccca aaagagactc 240
acccgctttg tgaaatggct atatcaggtt gcagcg 276

<210> 851
<211> 430
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (70)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (94)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (174)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (313)

<222> (217)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (226)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (280)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (312)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (315)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (334)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (361)
<223> n equals a,t,g, or c

<400> 849
ggcagagcct aggtcgcggc gacatggcca aacgtaccaa gaaagtcggg atcgtcggta 60
aatacgggac ccgctatggg gcctccctcc ggaaaatggt gaagaaaatt gaaatcagcc 120
agcacgccaa gtacacttgc tctttctgtg gcaaaaccaa gatgaagaga cgagctgtgg 180
ggatctggca ctgtggttcc tgcatgaaga cagtgnntgg cggtgnctgg acgtacaata 240
ccacttccgc tgtcacggtt aaagtccgcc atcagaagan tgaaggagtt gaaagaccat 300
tagacgttcc tntantcttt gggacatcat tggnctataa ttaatgggtt aatttttggt 360
naaaa 365

<210> 850
<211> 276
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (5)
<223> n equals a,t,g, or c

<210> 847
<211> 428
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (5)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (21)
<223> n equals a,t,g, or c

<400> 847
attanccctc actaaagggg ncaaaagctg gggctccacc gcggtgacga ccgctctaga 60
actagtggat cccccgggct gcaggaattc ggcacgaggt cgcggcgaca tggccaaacg 120
taccaagaaa gtcgggatcg tcggtaaata cgggacccgc tatggggcct ccctccggaa 180
aatggtgaag aaaattgaaa tcagccagca cgccaagtac acttgctctt tctgtggcaa 240
aaccaagatg aagagacgag ctgtggggat ctggcactgt ggttcctgca tgaagacagt 300
ggctggcggt gcctggacgt acaataccac ttccgctgtc acggtaaagt ccgccatcag 360
aagactgaag gagttgaaag accagtagac gctcctctac tctttgagac atcactggcc 420
tataataa 428

<210> 848
<211> 348
<212> DNA
<213> Homo sapiens

<400> 848
tcgcggcgac atggccaaac gtaccaagaa agtcgggatc gtcggtaaat acgggacccg 60
ctatggggcc tccctccgga aaatggtgaa gaaaattgaa atcagccagc acgccaagta 120
cacttgctct ttctgtggca aaaccaagat gaagagacga gctgtgggga tctggcactg 180
tggttcctgc atgaagacag tggctggcgg tgcctggacg tacaatacca cttccgctgt 240
cacggtaaag tccgccatca gaagactgaa ggagttgaaa gaccagtaga cgctcctcta 300
ctctttgaga catcactggc ctataataaa tgggttaatt tatgtaac 348

<210> 849
<211> 365
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (216)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (14)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (20)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (28)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (32)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (42)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (115)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (171)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (181)
<223> n equals a,t,g, or c

<400> 846
aattntaatt aaantcaccn tcactaangg ancaaagctg gngctccacc gcggtggcgg 60
ccgctctagc actagtggat cccccgggtc tgcaggaatt cggcacgagc gcagnaagcg 120
agatgacgag ggaacgtcat cgtttggaaa gcgtcgcaat aagacgcaca ngttgtgccg 180
ncgctgtggc tctaaggcct accaccttca gaagtcgacc tgtggcaaat gtggctaccc 240
tgccaagcgc aagagaaagt ataactggag tgccaaggct aaaagacgaa ataccaccgg 300
aactggtcga atgaggcacc taaaaattgt ataccgcaga ttcaggcatg gattccgtga 360
aggaacaaca cctaaaccca agagggcagc tgttgcagca tccagttcat cttaagaatg 420
tcaacggtta gtcatgcaat aaatgttctg gtttt 455

nnggnnnnca aattanccct gcactgaang gnaacaaaag ctgggagctc ncaccgcggt 60
ggnggccgct ctagtaacta gtggatcccc cgggnctgca gggaattcgg gcacgagcaa 120
gccaagatgg gtgcnataca agtacatcca ggtagctatg gagaaagaag cagtctgatg 180
tcatgcgctt tcttctgagg gtccgctgct ggcagtaccg ccanctctct gctctccaca 240
gggnctcccc gccccacccg gcctgataaa gcgcgncgac tgggctacaa ggccaagcaa 300
ggttacgtta tatataggat tcgtgttcgc cgtggtggcc gaaaacgccc agttcctaag 360
ggtgcaactt acggcaagcc tgtccatcat ggtgttaanc anctaaagtt tgctcgaagc 420
cttcagtccg ttgcagagga gcgagctgga cgccactgtg ggctctgag agtcctgaat 480
tcttactggg ttggtgaaga tt 502

<210> 845
<211> 601
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (3)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (6)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (9)
<223> n equals a,t,g, or c

<400> 845
gcnganacna accctcacta aagggaacaa aagctggagc tccaccgcgg tgacgaccgc 60
tctagaacta gtggatcccc cgggctgcag gaattcggca gagctttgct tttccatccg 120
cctttgatcg tcttcctctt cagccatcca ggtaagccaa gatgggtgca tacaagtaca 180
tccaggagct atggagaaag aagcagtctg atgtcatgcg ctttcttctg agggtccgct 240
gctggcagta ccgccagctc tctgctctcc acagggctcc ccgccccacc cggcctgata 300
aagcgcgccg actgggctac aaggccaagc aaggttacgt tatatatagg attcgtgttc 360
gccgtggtgg ccgaaaacgc ccagttccta agggtgcaat tacggcaagc ctgtccatca 420
tggtgttaac agctaaagtt tgctcgaagc cttcagtccg ttgcagagga gcgagctgga 480
cgccactgtg ggctctgag agtcctgaat tcttactggg ttggtgaaga ttccacatac 540
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<212> DNA
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<400> 844

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gccaacgtca acattgggag cctcatctgc aatgtagggg ccggtggacc tnctccagca 420
gctggtgctg caccagcagg aggtcctgcc ccctccactg ctgctgctcc agctgaggag 480
aagaaagtgg aagcaaagaa agaagaatcc gaggagtctt atgatgacat gggctttggt 540
ctttttgact aaacctcttt tataacatgt tcaataaaaa gctgaacttt acaaaaa 597

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aaggcggcaa aaagggagcc aagaagaaag tggttgatcc atttctaag aaagattggt 120
atgatgtgaa agcacctgct atgttcaata taagaaatat tggaaagacg ctcgtcacca 180
ggacccaagg aaccaaaatt gcatctgatg gtctcaaggg tcgtgtgttt gaagtgagtc 240
ttgctgattt gcagaatgat gaagttgcat ttagaaaatt caagctgatt actgaagatg 300
ttcagggtaa aaactgcctg actaacttcc atggcatgga tcttacccgt gacaaaatgt 360
gttccatggt caaaaaatgg canacaatga ttgaagctca cgttgatgtc aagactaccg 420
atggttactt gcttcgctgt tctgngntgg ntntactaaa 460

<210> 843
<211> 597
<212> DNA
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<220>
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<223> n equals a,t,g, or c

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<223> n equals a,t,g, or c

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ccgctctaga actagtggat cccccgggct gcaggaattc ggcacgaggt ccttccgagg 120
aagctaaggc tgcgttgggg tgaggccctc acttcatccg gcgactagca ccgcgtccgg 180
cagcgccanc ctacactcgc ccgcgccatg gcctctgtct ccgagctcgc ctgcatctac 240
tcggccctca ttctgcacga cgatgaggtg acagtcacgg aggataagat caatgccctc 300

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aggnaaggnn tggcgaaacg gtgtattacc gtttgctacc agnnaagaac gtganganaa 120
gangggcacg aggcctggtt tttaaggagt gtcgccagag tgcctcgatg anacgggtat 180
tggcggtata tggagttaaa agatgaccan ctanangact gagctagtan cagg 234

<210> 842
<211> 460
<212> DNA
<213> Homo sapiens

<220>
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<223> n equals a,t,g, or c

<220>
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<220>
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<222> (214)
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<220>
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<222> (244)
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tntctacata aaatacaaaa acttagatgg gcatggtgct gtgngcctat agtcccacta 120
cttgtggggc taaggcagga ggatcacttg agccccggag gtcgaggcta cantgcgcca 180
agagtgcact actgtactcc agccagggca aggagagcga gaccctgtnt caaataaata 240
aatnaantta attaaataan taatttaaat aaaagcnaa 279

<210> 841
<211> 234
<212> DNA
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<222> (49)
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<220>
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<222> (64)
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<400> 839
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ccatgtattc ggctgctggc agagacttgg ggatggaacc gcacagagcc gcgggccctt 120
tgccagctgc gaattttcgc cctgacgttt tcaacggagg tgactatact gggcaattgc 180
tggagaagat tttgccaatt gttgcttctg aatactcgat tgantgaaag ggttttnaat 240
tcatacgcgg ggttagcccc aaatgttaca anttaaacag ncaaaacagt ccattggatg 300
cagcggtttt ccatggagac tgttcttacg gntgacaaag atttttgaa gcaagactaa 360
agntgtatta ggcattccca ttattaaggc ctggattacg ggggggcatt nctgcaatgc 420
tgtcnaaaat ncccgtnttt caaggngttt tttnccctac tntggtttac aac 473

<210> 840
<211> 279
<212> DNA
<213> Homo sapiens

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ccgggtcgac ccacgcgtcc ggccagccgt tcacgcgttc ggtcctcctt ggctgantca 120
ccgccctcgc cgccgcanca tggacgcccc cangcaggtg gtcaactttg ggcctggtcc 180
cgccaanctg ccgcactcag tgttgttaga gatacaaaag gaattattag actacaaagg 240
aattggcatt agtgttcttg aaatgantca cangtcatca gattttgcct agattattan 300
caatacagaa aatcttgtgc gggaattgct aactgttcca gacaactata angtgatttn 360
tctggcangg aagtgggtgc ggccaattca ntgctgtccc ttaancctca ttggcttgaa 420
agcangaaag tgtgcggact atgtngtgac aggaacttgg tcagctaagg gcgcanaaaa 480
aacc 484

<210> 839
<211> 473
<212> DNA
<213> Homo sapiens

<220>
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<222> (187)
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<222> (267)
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<222> (368)

<400> 836
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ggcgacggtg cgggcttcan agggncccgt ttacaaagga gtctgcaaat gcttctnccg 120
gtccaagggc catggcttca tnnccccagc tgatggcggc cccgacatct tcctgcacat 180
ctttgaatgn gnaaggggga gtatgtncca ntggaaggcg acgaggtcan ctataaaatg 240
tgcttccatc ccacccaaga ntgagaagct ncaagccgtg ggagttcgtc atcaatcacc 300
tggcaccagg naccaagtat gagacctggt tttggacant ttcatcantt tcntaggaga 360
ttggttggaa gcancccttt tt 382

<210> 837
<211> 375
<212> DNA
<213> Homo sapiens

<400> 837
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gacgctaacc ccctccccag ccacaaagag tctacatgtc tagggtctag acatgttcag 120
ctttgtggac ctccggctcc tgctcctctt agcggccacc gccctcctga cgcacggcca 180
agaggaaggc caagtcgagg gccaagacga agacatccca ccaatcacct gcgtacagaa 240
cggcctcagg taccatgacc gagacgtgtg gaaacccgag ccctgccgga tctgcgtctg 300
cgacaacggc aaggtgttgt gcgatgacgt gatctgtgac gagaccaaga actgccccgg 360
cgccgaagtc cccga 375

<210> 838
<211> 484
<212> DNA
<213> Homo sapiens

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<222> (271)
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<220>
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<222> (348)
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<220>
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<222> (353)
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<220>
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<222> (374)
<223> n equals a,t,g, or c

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tgttgcccct gaagagcatc ccaccctgct cacggaggca cccctgaacc ccaaggccaa 120
ccgggagaaa atgactcaaa ttatgtttga gactttcaat gtccaagcca tgtntttggc 180
tatccaggcg gtgctgtctc tctatgcctc tggangcaca atggaatcgt gctggactct 240
ggagatggtg tcacccanaa tgtcccaatn tatgagggct atgcttgncc ccatgcaata 300
natgggtctg natttgg 317

<210> 836
<211> 382
<212> DNA
<213> Homo sapiens

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<222> (190)
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<220>
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accttctggg caaggaggac gcggcgcgcg agattcgccg cttcagcttc tgctgcagcc 120
ccgagcctga ggcgggaagc nnggctgcgg cgggtccggg acccttgcga gcggctgctg 180
agccgggtgg ccgccctgtt ccccgcgctg cggcctggcg gctttccagg cgcactaccg 240
cgattgagga cggggatttg ttgctttttt ccattgacga ggatttgaca tgggcatgtt 300
ctacgttgaa gatgaatctt tncgatttta natttnaaga gaaaanattt ccggcgggga 360
cacgncaagt 370

<210> 835
<211> 317
<212> DNA
<213> Homo sapiens

<220>
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<222> (174)
<223> n equals a,t,g, or c

<220>
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<220>
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<220>
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<220>
<221> misc feature
<222> (311)
<223> n equals a,t,g, or c

<222> (444)
<223> n equals a,t,g, or c

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gccgctcctg gtgctgcttg tgtgctcgtt tggtgcggac ctggtacctc ttttgtgaag 120
cggcagctga ggagactccg gcgctcgcca tggccgacga aaagcccaag gaaggagtca 180
agactgagaa caacgatcat attaatttga aggtggcggg gcaggatggt tctgtggtgc 240
agtttaagat taagaggcat acaccactta gtaaactaat gaaagcctat tgtgaacgac 300
agggattgtc aatgaagcag atcagattcc gatttnacgg gcaaccaatc aatgnaacag 360
acacacctgc acagttgggn aatgggagga tgaagatacc aatgatgtgt tccaaacagc 420
agacgggagg tgtctactga aaan 444

<210> 834
<211> 370
<212> DNA
<213> Homo sapiens

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<220>
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<220>
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<220>
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<222> (336)
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<220>
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<220>
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gcgatgctgg caacacggcg gctgctcggc tggtcgcttc ccgcgcggac agcacccaag 120
aaaacctcat ttggctcgct gaaggatgaa gaccggattt tnaccaacct gtacggccgc 180
catgactgga ggctgaangt tccctgagtc gaggtgactg gtacaagaca aaggagatcc 240
tgctgaaggg gcccgactgg atcctgggcg agatcaagac atcgggttta aggggccgtg 300
gaggcgctgg cttccccaat ggcctcaagt ggngnttcat gataaggcct cagatggcag 360
gcccaagtat ttggtggttn aacgcaaacg aggggggagc cgggnaactg naagaaccgg 420
ggggttttta ggccnggntc ttaaaaagtt tttgaaggtt nctttgttgg gggnccggnc 480
atgggggccc ggttgnntat ttttt 505

<210> 833
<211> 444
<212> DNA
<213> Homo sapiens

<220>
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<220>
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<222> (438)
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<220>
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<222> (356)
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ggccgctcag gcgcctgcgg ctgggtgagc gcacgcangg cggcgaggcg gcacgtgttt 120
ctaggtcgtg gcgtcgggct tncggagctt tggcggcact aggggaggat ggcggagtct 180
tcggataagc tctatcgagt cgagtacgcc aagagcgggc gcgcctcttg caagaaatgc 240
agcgagacat ccccaaggac tcgctccgga tggncatcat ggtgcatcgc ccatgtttga 300
tggaaaagtc cacatggtac anttctcctg cttctggaag tgggcaatcc atccgnanct 360
gactttaagt ganngtttc ttata 385

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<211> 505
<212> DNA
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<222> (5)
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gctgtgtaat cattaaggag cggaggcttt tggagctgct aaaatgccgg attacctcgg 180
tgccgatcag cggaagacca aagaggatga gaaggacgac aagcccatcc gagctctgga 240
tgagggggat attgccttgt tgaaaactta tggtcagagc acttactcta ggcagatcaa 300
gcaagttgaa gatgacattc agcaacttct caagaaaatt aatgagctca ctggtattaa 360
agaatctgac actggcctgg ccccaccagc actctgggat ttggctgcag ataagcagac 420
actccagagt gaacagcctt tacaggttgc caggtgtaca aagataatca atgctgattc 480
ggaggaccca aaatacatta tcaacgtaaa gcagtttgcc aagtttgtgg tggaccttag 540
tgatcaggtg gcacctactg acattgaaga agggatgaga gt 582

<210> 831
<211> 385
<212> DNA
<213> Homo sapiens

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<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (142)
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<220>
<221> misc feature
<222> (139)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (343)
<223> n equals a,t,g, or c

<220>
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<222> (362)
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<222> (391)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (489)
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cggttaccca cagtctttcg ccagatgaga ccggtgtcca gggtactggc tcctcatctc 120
antcgggctt atgccaaana tgtaaaattt ggtgcagatg cccgagcctt aatgcttcaa 180
ggtgtagacc ttttagccga tgctgtggcc gttacaatgg ggccaaaggg aagaacagtg 240
attattgagc agagttgggg aagtcccaaa gtaacaaaag atggtgtgac tgttgcaaag 300
tcaattgact taaaagataa atacaaaaac attggagcta aanttgttca agatgttgcc 360
antaacacaa ttgaggagct ggggatggca ntaccatgct actgttatgg cacgtctata 420
gccaaggaag gtttcgagaa ggttagcaag gtgctaatcc atgggaatca ggagaggtgt 480
gatgttagng ttgatgctgt attg 504

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<212> DNA
<213> Homo sapiens

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<221> misc feature
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<222> (128)
<223> n equals a,t,g, or c

<220>
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<222> (438)
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cccacgcgtc cgggaggggga cacgggctca ttgcggtgtg cgccctgcac tctgtccctc 120
actcgccncc gacgacctgt ctcgccgagc gcacgccttg ccgccgcccc gcagaaatgc 180
ttcggttacc cacagtcttt cgccagatga gaccggtgtc cagggtactg gctcctcatc 240
tcactcgggc ttatgccaaa gatgtaaaat ttggtgcaga tgcccgagcc ttaatgcttc 300
aaggtgtaga ccttttagcc gatgctgtgg ccgttacaat ggggccaaag ggaagaacag 360
tgattattga gcagagttgg ggaagtccca aagtaacaag agatggtgtg actgttgcaa 420
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<210> 829
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<212> DNA
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<222> (122)
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<221> misc feature
<222> (487)
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<220>
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<222> (517)
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<220>
<221> misc feature
<222> (519)
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gggtcgaccc acgcgtccgc cacggtccgc actgcctctt cccttctcgc ttgggaactc 120
tagtctcgcc tcgggttgca atggacccca actgctcctg tgccgctgag gtgtctcctg 180
cacctngcca gtcctgcaag tgcaaagagt gcaaatgcac ctcctgcaag aagagctgct 240
gctcctgctg ccctgtggct gtgccaagtg tgcccagggc tgcatctgca aaggggcatc 300
ggagaagtgc agctgctgcg cctgatgtcg ggacagccct gctcccaagt acaaatagag 360
tgacccgtaa aatccaggat tttttgtttt ttgctacaat cttgacccct ttgctacatt 420
cctttttttc tgtgaaatat gtgaataata attaaacact tagacttgaa aaaaaaaana 480
aaaaaanaaa aaagggggn cctttttagg gggttcncn 519

<210> 828
<211> 442
<212> DNA
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<222> (11)
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gcgccccctc atcaccgtcg ccatgcccgg aggtctgctt ctcggggacg tggctcccaa 120
ctttgaggcc aataccaccg tcggccgcat ccgtttccac gactttctgg gagactcatg 180
gggcattctc ttctcccacc ctcgggactt taccccagtg tgcaccacag agcttggcag 240
agctgcaaag tggcaccaga atttgncaag aggnatgtta agttgattgc cctttcaata 300
gacagtgttg aggaccatct tgcctggagc aaggatatca atgnttacaa ttgtgagggg 360
ccacagaaag ttacctttc ccatcatcgt gataggatcg gagttnccat cctnttggna 420
ngtnggtcca cagagaaggt gaaagggang cctttnagtc gtgtggngtt tttttggccc 480
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<212> DNA
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cttttcccat catcgatgat aggaatcggg agcttgccat cctgttgggc atgctggatc 180
cagccagaga aggatgaaaa gggcatgcct gtgacagctc gtgtggtgtt tgtttttggt 240
cctgataaga agctgaagct gtctatcctc tacccagcta ccactggcag gactttgatg 300
agatctcagg gtagtccanc tctctccagc tgacanagaa aaagggttgc acccagttga 360
ttggaggntg ggataggtat ggcctccacc ncctgagaga gcaaaaattt tccgnagagn 420
tnacaagngt ccttgcagan actcgtaaac cagctaagtn tgngagtgnn ttngcaagtn 480
taatccattt ttcngagatc 500

<210> 826
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<212> DNA
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<223> n equals a,t,g, or c

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<220>
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cgtcttgctg ctgatgactt tagaggcnag tatgagacag atctggccat gcgccantct 120
gtgganaacg acatccatgg gctccgaaag gtcattgatg acaccaatat cacacgactg 180
canctggaga cagagatcga ggntctnang gaggatctgc tcttcatgaa naanaaccac 240
taagaggaan gancaaggcc tacaagccca nattgccanc tctgggntga ccgnggaggt 300
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cnagctggct cntaagaacc gagangaagc tagaccagta ctggtcttaa acanattnan 420
ganagcacca cagtggtcan cacacagtct gctgaagttg gaactgctga aacnacgctc 480
acaganctta gacgtacagg ccattccttg gaaatatgaa ctggacttca ttagaaatct 540
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<210> 825
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<212> DNA
<213> Homo sapiens

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<222> (234)
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<220>
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accctcactg tcaacccaac acaggcatgc tcataaggaa aggttaaaaa aagtaaaagg 180
aactcggcaa atcttacccc gcctgnttac caaaaacatc acctctagca tcaccagtat 240
tagaggcacc gactgcccan gtgacacatg tttaacggcc gcggtaccct aaccgtgcaa 300
aggtagcata atcacttggt ccttaattan ggacctgtat gaatggctcc acgagggttc 360
aagctgnctc ttacttttaa ccagtgaaaa tgacctgncc gngaagaggc gggcataaca 420
cagcangacc aagaagaccc tatggagctt taatntatta ngcaaacagt ccta 474

<210> 823
<211> 463
<212> DNA
<213> Homo sapiens

<220>
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gaataagaag gggaagacta tctccctaac agactttctg gctgaggatg ggggtactgg 120
tggaggaagc acctatgttt ccaaaccagt cagctgggct gatgaaacgg atgacctgga 180
aggagatgtt tcgaccactt ggcacagtaa cgatgacgat gtgtataggg cgcctccaat 240
tgaccgttcc atccttccca ctgctccacg ggctgctcgg gaacccaata tcgaccggag 300
ccgtcttccc aaatcgccac cctacactgc ttttctagga aacctaccct atgatgttac 360
agaagagtca attaaggaat tctttcgagg attaaatatc agtgcagtgc gtttaccacg 420
tgaacccagc aatccagaga ngttgaaagg tttgggtatg ctg 463

<210> 824
<211> 599
<212> DNA
<213> Homo sapiens

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<220>
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ggctgtgcca agtgtgccca gggctgcgtc tgcaaagggg catcggagaa gtgcagctgc 240
tgtgcctgat gtgggaacag ctcttctccc atatgtaaat agaacaacct gcacaacctg 300
gattttttta aaaatacaac actgagccat ttgctgcatt tcttttatac taaatatgtg 360
actgacaata aaaacaattt tgactttaaa anaaaaaaaa agggggccnt ttggggtccc 420
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<212> DNA
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<222> (8)
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<400> 820
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ggagacgctg cagacccgcg acccggagca gctcggaggc ggtgaataat agctcttcaa 120
gtctgcaata aaaaatggcc tccaacaaaa ctacattgca aaaaatggga aaaaaacaga 180
atggaaagag taaaaaagtt gaagaggcag agcctgaaga atttgtcgtg gaaaaagtac 240
tagatcgacg tgtagtgaat gggaaagtgg aatatttcct gaagtggaag ggatttacag 300
atgctgacaa tacttgggaa cctgaagaaa atttagattg tccagaattg attgaagcgt 360
ttcttaactc tcagaaagct ggcaaagaaa aagatggtac caaaagaaaa tctttatctg 420
acagtggatc tgatgacagc aaacaaaga 449

<210> 821
<211> 453
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (29)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (392)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (409)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (430)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (433)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (434)
<223> n equals a,t,g, or c

<400> 821
cgcgtccggc ctgactgctt gttcgtctna ctggtgtgag ctccagcatc ccctttgctc 60
gaaatggacc ccaactgctc ttgcgccact ggtggctcct gcacgtgcgc cggctcctgc 120

<221> misc feature
<222> (355)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (359)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (379)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (452)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (453)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (455)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (456)
<223> n equals a,t,g, or c

<400> 819
ntgatagaca agaangaaag taacccgnac taaagggaac aaaagcngga gctccaccgc 60
ggtgccgncc gctctagaac tagtggatcc cccgggctgc aggaattcgg cacgagctcc 120
gccagacagc gggncaaagt gctggcccat ttctatgggg tgaagctgga gggcaaggtg 180
cccatgcaca agctgttctt ggagatgctc gaggccatga tggactgagg caaggggtgg 240
gactggtggg ggttctggcc aggacctgcc ttagcatggg gtccagcccc aagggctgng 300
gcggactggg gtctgggcat gccacagcct gctggcaggc cagggcatgc cntcncccng 360
gggaacaggc cccacgccnt ttcttcccct tctaaggggt gttcaaaact gggaactttt 420
ttccaggttt tgggcacatt gttgcccctt tnnanncata aa 462

<210> 820
<211> 449
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature

atactgaaaa ccctataagg tcctggataa tttttgtttg attattcatt gaagaaacat 240
ttattttcca attgtgtgaa gtttttgact gttaataaaa gaatctgtca accatcaaaa 300
aaanaaaaaa aaaaaacctg gggggggcc ccgnanccna tttggccctt tgggggggg 360
tntt 364

<210> 819
<211> 462
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (15)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (28)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (47)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (68)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (134)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (299)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (352)
<223> n equals a,t,g, or c

<220>

<222> (379)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (384)
<223> n equals a,t,g, or c

<400> 817
gggagacatt naagannttc aaggatccca atgcacccaa gaggcctcct tcggccttct 60
tcctcttctg ctctgagtat cgcccaaaaa tcaaaggaga acatcctggc ctgtccattg 120
gtgatgttgc gaagaaactg ggagagatgt ggaataacac tgctgcagat gacaagcagc 180
cttatgaaaa gaaggctgcg aagctgaagg aaaaatacga aaaggatatt gctgcatatc 240
gagctaaagg aaagcctgat gcagcaaaaa agggagttgt caaggctgaa aaaagcaaga 300
aaaagaagga agaggaggaa gatgaggaag atgaagagga tgaggaggag gaggaagatg 360
aagaagatga angatgnnna cacntg 386

<210> 818
<211> 364
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (304)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (334)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (336)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (339)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (362)
<223> n equals a,t,g, or c

<400> 818
ggcacgagaa aatgtcaggc ctgattatct aaaagctatt tggaatgtaa tcaactggga 60
gaatgtaact gaaagataca tggcttgcaa aaagtaaacc acgatcgtta tgctgatcat 120
accctaatga tcccagcaag ataatgtcct ttcttctaag atgtgcatca agcctggtac 180

<223> n equals a,t,g, or c

<400> 816
cnagtgtaga cagcnaaccc tcactaaagg gaacaaaagc tggagctcca ccgcggtgcg 60
gccgctctag aactagtgga tcccccgggc tgcaggaatt cggcacgagc aggcatgcag 120
aaggctgacg tctatagctt tgggatcatc ctgcaggaga tagcacttcg cagtggtcct 180
ttctacttgg agggcctgga cctcagcccc aaagagattg tccagaaggt acgaaatggt 240
cagcggccat atttccggcc aagcattgac cggacccaac tgaatgaaga gctagttttg 300
ctgatggagc gatgttgggc tcaggaccca gctgagcggc cagactttgg acagattaag 360
ggcttcattc ggcgctttaa caaggagggt ggcaccagca tattggacaa cctcctgctg 420
cgcatggaac agtatgccaa taacttggag aagctggtgg aggaacgcac acaggcctat 480
ctggaggaaa aacgcaaggc tgaagctctg ctctaccaaa tcctacccca ttcagtggca 540
gagcagttaa a 551

<210> 817
<211> 386
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (11)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (16)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (17)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (372)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (377)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (378)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (437)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (466)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (486)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (506)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (507)
<223> n equals a,t,g, or c

<400> 815
ggcacagcnc gcatgggctg cggggccgcg cgagctcgcc tccgtcctct gcctccgcag 60
aacgccgcga tggctgcgca gggagagccc caggtccagt tcaaagtagg taaccctgcg 120
ggcgggaggc ggccgagccc gaccgcgtgc gactcgcggg tccctcctcc tggggccacg 180
atggctgtaa tggggccccg catccacatt ctttgtttta agtgagcctg tggtggttaa 240
agttccgtga ctctgggatc ttganaggtg aatgtttang gtttacttcc aaaatgtgtt 300
tttcaacanc ttgtaatggt tggtgatggt ggtaangggа aaaacgacnt cgtggaantg 360
catttgactg gtggaatttg agaanaatgt gttagccanc ttgggtgttg gaggttcaac 420
ccccaatgtt tccacancaa cagaggaccc attaagttca atgtantggg acacagccgg 480
ccaggngaat tccgtggact ggaaann 507

<210> 816
<211> 551
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (2)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (15)

aatantnagc ctttctgaag catcaaagcc ttagaccagn tgaagactcc agccatgacc 300
tcangctgct ccgnct 316

<210> 815
<211> 507
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (9)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (265)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (279)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (309)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (336)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (349)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (358)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (385)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (399)

<220>
<221> misc feature
<222> (177)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (186)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (195)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (210)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (245)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (247)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (280)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (304)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (314)
<223> n equals a,t,g, or c

<400> 814
aaagggacaa aagcnggagc nccaccgcgg ggcgnccgct ctagaactag tggatccccc 60
gggctgcagg aattcggcac agctntgggg gantcctggt gcacccccan ngggtctnct 120
ntgctgccca ttgcctaaag aagaatagcc aggnctggct gggtcggcac aacctgnttg 180
agcctnaaga cacangccag agggtccctn tcagccacag cttcccacac ccgctctgac 240

<213> Homo sapiens

<220>
<221> misc feature
<222> (15)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (21)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (35)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (85)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (93)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (110)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (111)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (118)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (121)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (154)
<223> n equals a,t,g, or c

<221> misc feature
<222> (15)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (20)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (27)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (42)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (48)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (50)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (53)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (69)
<223> n equals a,t,g, or c

<400> 813
gaaaataagn gatgntcgan gtgaaanacc atactaaagg gncaaaantn gantcaccgc 60
ggtgcggcng tctagactag tggatccccc gggctgcagg aattggcacg aggttagttt 120
ctgcgacttg tgttgggact ggaagatgtc ttcaggaaat gctaaaattg ggcaccctgc 180
ccccaacttc aaagccacag ctgttatgcc agatggtcag tttaaagata tcagcctgtc 240
tgactacaaa ggaaaatatg ttgtgttctt cttttaccct cttgacttca cctttgtgtg 300
ccccacggag atcattgctt tcagtgatag ggcagaagaa tttaagaaac tcaactgcca 360
agtgattggt gcttctgtgg attctcactt ctgtcatcta gcatgggtca ataca 415

<210> 814
<211> 316
<212> DNA

ctggacaaat tgtaggcggc ccttcctgca gcgcctgccg ccccggggac tcgcagcacc 420
cacagcacca cgtcctcgaa ttctcagacg acacctggag actgtcccga cacagcgacg 480
ctcccctgag aggtttctgg ggcccgctgc gtgccatcac tcaaccataa cacttgatgc 540
cgnttctttc aatatttatt tccagagtcc ggaggcagca gacacgccct cttagtaggg 600
acttaatggg ccggtcggng agggggaggc gggatgggac acccaacact tttttcattt 660
cttcagangg naaacttcag atgtccaaac taattttaac aaacgcatta aganggttaa 720
tttgggtaca atgggcccga atggcttt 748

<210> 812
<211> 562
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (4)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (5)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (8)
<223> n equals a,t,g, or c

<400> 812
aagnnganac aaccctcact aaagggaaca aaagctggag ctccaccgcg gtgcggccgc 60
tctagaacta gtggatcccc cgggctgcag gaattcggca cgagcacaat ttgcgcgctc 120
tctttctgct gctccccagc tctcggatac agccgacacc atgggtttcg gagacctgaa 180
aagccctgcc ggcctccagg tgctcaacga ttacctggcg gacaagagct acatcgaggg 240
gtatgtgcca tcacaagcag atgtggcagt atttgaagcc gtgtccagcc caccgcctgc 300
cgacttgtgt catgccctac gttggtataa tcacatcaag tcttacgaaa aggaaaaggc 360
cagcctgcca ggagtgaaga aagctttggg caaatatggt cctgccgatg tggaagacac 420
tacaggaagt ggagctacag atagtaaaga tgatgatgac attgacctct ttggatctga 480
tgatgaggag gaaagtgaag aagcaaagag gctaagggaa gaacgtcttg cacaatatga 540
atcaaagaaa gccaaaaaac ct 562

<210> 813
<211> 415
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (10)
<223> n equals a,t,g, or c

<220>

<220>
<221> misc feature
<222> (407)
<223> n equals a,t,g, or c

<400> 810
aagaaagtag aggacatgat gaagaagctg tggggtgacg gcccagaagt accgctgcga 60
gctcctgtac gaggggcccc cggacgacga ggctgccatg ggcattaaaa gctgtgaccc 120
caaaggccct cttatgatgt atatttccaa aatggtgcca acctccgaca aaggtcggtt 180
ctacgccttt ggacgagtct tctcggggct ggtctccact ggcctgaagg tcaggatcat 240
ggggcccaac tatacccctg ggaagaagga ggacctctac ctgaagccaa tccagagaac 300
aatcttgatg atgggccgct aagtggaagc ccatcgaagg atgtgccttg tngggacatt 360
ttgggcctcg tggcgttgga ccantccttg tgaaaacggg naccannaac aacttc 416

<210> 811
<211> 748
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (543)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (619)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (668)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (671)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (714)
<223> n equals a,t,g, or c

<400> 811
gccgcccagc cacgcctcat ggagcccatc taccttgtgg agatccagtg tccagagcag 60
gtggtcggtg gcatctacgg ggttttgaac aggaagcggg gccacgtgtt cgaggagtcc 120
caggtggccg gcaccccat gtttgtggtc aaggcctatc tgcccgtcaa cgagtccttt 180
ggcttcaccg ctgacctgag gtccaacacg ggcggccagg cgttccccca gtgtgtgttt 240
gaccactggc agatcctgcc cggagacccc ttcgacaaca gcagccgccc cagccaggtg 300
gtggcggaga cccgcaagcg caagggcctg aaagaaggca tccctgccct ggacaacttc 360

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (362)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (365)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (380)
<223> n equals a,t,g, or c

<400> 809
ggcacgaggc tgaggcggcg ccagttggcc gggcacgggg ctgctgtaag gccgaggttg 60
cggcggaagc ggagaccatg ttccgagcgg cggctccggg gcagctccgg cgggcggcct 120
cattgctacg atttcagagt accctggtaa tagctgagca tgcaaatgat tccctagcac 180
ccattacttt aaataccatt actgcagcca cacgccttgg aggtgaagtg tcctgcttag 240
tagctggaac caaatgtgac aaggtggcac aagatctctg taaagtagca ggcatagcaa 300
aaagttctgg tggctcagca tgaatgtgta caagggctta cttccagang gaactgaana 360
cnatnatttt tggaaactcn 380

<210> 810
<211> 416
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (352)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (384)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (401)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (406)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (473)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (503)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (512)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (516)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (543)
<223> n equals a,t,g, or c

<400> 808
ggcacgagtg gagaaccggg cccagcagca ctggggcagt ggagtgggag tgaagaagct 60
gtgtgaactg cagcctgagg agaagtgctg tgtggtgggc actctgttca aggccatgcc 120
gctgcagccc tccatcctgc gggaggtcag cgaggagcac aacctgctcc cccagcctcc 180
tcggagtaaa tacatacacc cagatgacga gctggtcttg gaagatgaac tgcagcgtat 240
caaactaaaa ggcaccattg acgtgtcaaa gctggttacg gggactgtcc tggctgtgtt 300
tggctccgtg agagacgacg ggaagtttct ggtggaggat tattgctttg ttgaccttgc 360
tccccagaag cccgnacccc cattgacaca gttaggttnt gttantggtg tccggcctgg 420
gcctgggtgg cgttggaggc gagagcntgt tgggcaccca ttgttggtgg atntggtgac 480
ggggcagttt ggggacgaag ggnagcatgc ancgcngcca agtttcccgg ttatcctggt 540
tgnaacttct aa 552

<210> 809
<211> 380
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (349)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (359)

<220>
<221> misc feature
<222> (215)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (219)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (228)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (231)
<223> n equals a,t,g, or c

<400> 807
ctcgtgccga attcggcacg agaaactttc ctcactatct gcttcatccg ccaactaata 60
tttcacttta catccaaaca tcactttggc ttcgaagccg ccgcctgata ctggcatttt 120
gnacatgtgg tttgactatn tccgtatgtc tccatctatt gatgagggtc ttaaaaaaaa 180
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaancccng gggggggncc nggacc 236

<210> 808
<211> 552
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (375)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (399)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (405)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (447)
<223> n equals a,t,g, or c

actgcaagac taagggactt tgaagtaaaa gatcttctta gtctaactca gttcttggct 300
tgacacagag acatttctct agctgtgaat tactggacag antcctgtct aaaatgaang 360
tacagcccaa gcacctgggt gtgttggact gagctgcttt tatttggctg taaaatcaat 420
agaagaggaa aaggatgtcc cattggcaac tgacttgatc cgaataagtc aatataaggt 480
tacgggttca gactgatgag aatgggaaaa attgtattng agaaggtgtg tttggaagtc 540
aagctactaa tgcctttcaa ttctgc 566

<210> 806
<211> 438
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (383)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (428)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (437)
<223> n equals a,t,g, or c

<400> 806
cccagtccta gctgctggca tcactatact actaacagac cgcaacctca acaccacctt 60
cttcgacccc gccggaggag gagaccccat tctataccaa cacctattct gatttttcgg 120
tcaccctgaa gtttatattc ttatcctacc aggcttcgga ataatctccc atattgtaac 180
ttactactcc ggaaaaaaag aaccatttgg atacataggt atggtctgag ctatgatatc 240
aattggcttc ctagggttta tcgtgtgagc acaccatata tttacagtag gaatagacgt 300
agacacacga gcatatttca cctccgctac cataatcatc gcttatcccc accggcgtca 360
aagtattagc tgactcgcca canttccacg ggagcaatat gaaatgatct ggctgcagtg 420
ctctgagncc taaggant 438

<210> 807
<211> 236
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (122)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (140)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (262)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (303)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (363)
<223> n equals a,t,g, or c

<400> 804
agangaccgg cagcctgtac ctgggcagca gatgaccctg aagatagagg gtgaccacgg 60
ggacnnnccn ngtactggtg gccgtggaca agggcgtgtt cgtgctgaat aagaanaaca 120
aactgacgca gagtaagatc tgggacgtgg tggagaaggc agacatcggc tgcaccccgg 180
gcagtgggaa ggattacgcc ggtgtcttct ccgacgcagg gctgaccnnc acgagcagca 240
gtggccagca gaccgcccag anggcagaac ttcagtgccc gcagccagcc gcccgccgac 300
gcngttccgt gcagctcacg gagaagcgaa tggacaaagt cggcaagtac cccaaggagc 360
tgngcaagtg ctgcgaggac ggcattcggg agaaccccat gaagttctcg tgccagggcg 420
gg 422

<210> 805
<211> 566
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (342)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (359)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (519)
<223> n equals a,t,g, or c

<400> 805
cgagctgacc ctgatcaggg ccgagttgtc tcggcggcgc tgccgaggcc tccacccggg 60
gagggtggtt accgctgagg agctgcagtc tctgtcaaga tgatagaggt actgacaaca 120
actgactctc agaaactgct acaccagctg aatgccctgt tggaacagga gtctagatgt 180
cagccaaagg tctgtggttt gagactaatt gagtctgcac acgataatgg cctcagaatg 240

aa 542

<210> 804
<211> 422
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (4)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (65)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (66)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (67)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (70)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (71)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (116)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (228)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (229)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (403)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (406)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (425)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (488)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (500)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (501)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (507)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (527)
<223> n equals a,t,g, or c

<400> 803
ggcacagctt ccgctttacc cgtctccctc ctggcgcttg tcctcctctc ccagtcggca 60
ccacagcggt ggctgccggg cgtggtgtcg gtgggtcggt tggtttttgt ctcaccgttg 120
gntnccgtgc cgttcagttg cccgccatgg ctgagctgga tccgttcggc gcccctgccg 180
gcgcccctgg ggtncccgcg ctggggaacg gatgnccggc gccggcgaag aagacccggc 240
tgcggccttc ttggcgcaaa gnagaagcga gattgcgggc atcgagaacg acgaggcctt 300
cgccatcctg gaacggcggc gcccccgggc cccaaccgca aggaaagtcc ggcgnggggt 360
tccgatgctg ttgnatggan taatgnaatg gtggattatn acnagnaaat taatggttcc 420
aacanaaatt atgcagtatt tcaaaatgga tcgattgcat caaaacctga aatatcctaa 480
atggaganag aaaatggaan nttgaancct taagccaatt tcggaancaa aaacaaatgg 540

<213> Homo sapiens

<220>
<221> misc feature
<222> (122)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (124)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (194)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (215)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (262)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (355)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (374)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (380)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (386)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (400)
<223> n equals a,t,g, or c

<211> 402
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (147)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (149)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (310)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (322)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (344)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (363)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (383)
<223> n equals a,t,g, or c

<400> 802
acccacgcgt ccgcccacgc gtcccggacg cgtgggtcga cccagctttc tagggcccta 60
gaaactctga caggtgcctt attccagcga cccccactta ttgctgcagt aaagaggcag 120
ctccgagtga ggaccatcta cgagagnana aatgattgaa tacgatcctg aaagaagatt 180
aggaatcttt tgggtgagtt gtgaggctgg cacctacatt cggacattat gtgtgcacct 240
tggtttgtta ttgggagttg gtggtcagat gcaggagctt cggagggttc gttctggagt 300
catgagtgan aaggaccaca tngtgacaat gcatgatgtg cttnatgctc agtggctgta 360
tgntaaccac aaggatgaga gtnacctgcg gggagttgtt ta 402

<210> 803
<211> 542
<212> DNA

<222> (101)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (113)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (122)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (149)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (157)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (171)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (179)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (205)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (242)
<223> n equals a,t,g, or c

<400> 801
ggcaggtcca cctggaccag gtggaggtgg ccagcnggct gaccctgtgc aaggagggct 60
gtnaggccat tgtngacaca ggcacttccc tcatggtggg nccggtggat gangtgcgcg 120
antgcagaag gccatcgggg ccgtgccgnt gattcanggc gagtacatga ncccctgtna 180
gaaggtgtcc accctgcccg caatnacact gaagctggga ggcaaaggct acaagctgtc 240
cncagagga 249

<210> 802

<221> misc feature
<222> (373)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (391)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (395)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (416)
<223> n equals a,t,g, or c

<400> 800
gttgactgag acacgcttca aaactggaac tactctgaaa tacacctgcc tccctggcta 60
cgtcagatcc cattcaactc agacgcttac ctgtaattct gatggcgaat gggtgtataa 120
caccttctgt atctacaaac gatgcagaca cccaggagag ttacgtaatg ggcaagtaga 180
gattaagaca gatttatctt ttggatcaca aatagaattc agctgttcag aaggattttt 240
cttaattggc tcaaccacta gtcgttgtga agtccaagat agaggagttg gctggagtca 300
tcctctccca caatgtgaaa ttgtccaagt gtaagcctcc tccagacatc aggaatggga 360
aggcacagcg gnngaagaaa atttctacgc ntaangggt ttctgtcacc taaagntggg 420
accc 424

<210> 801
<211> 249
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (36)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (63)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (74)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<400> 798
ctctaatana tcatatagga agnggtanct gcagtacggt cngaattccc ggctctagag 60
atccaagctt acgtacngcg catgcacgtc atagctcttc tatagtgtca cctaaattca 120
attcactggc cgtcgtttta caacgtcgtg actgggaaaa cnctntgnn 169

<210> 799
<211> 112
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (24)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (25)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (103)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (110)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (111)
<223> n equals a,t,g, or c

<400> 799
ctctagagga tccaagctta cgtnngcgtg catgcgacgt catagctctt ctatagtgtc 60
agctaaattc aattcactgg ccgtcgtttt acaacgtcgt gantgggaan nc 112

<210> 800
<211> 424
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (372)
<223> n equals a,t,g, or c

<220>

ccacgttctt aataagtggg atcttgttca aaactggaan aacactcaa 589

<210> 798
<211> 169
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (9)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (23)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (28)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (42)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (77)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (162)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (165)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (168)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (169)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (423)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (475)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (485)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (493)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (495)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (536)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (538)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (580)
<223> n equals a,t,g, or c

<400> 797
actagttcta gatcgcgagc ggccgctcta gaggatccaa gcttacgtac gcgtgcatgc 60
gacgtcatag ctcttctata gagtcaccta aattcaattc actggccgtc gttttacaac 120
gtcgtgactg ggaaaaccct ggcgttaccc aacttaatcg ccttgcagca catccccctt 180
tcgccagctg gcgtaatagc gaagaggccc gcaccgatcg cccttcccaa cagttgcgca 240
nctgaatggc gaatgggacg cgccctgtag cggcgcatta agcgcggcgg gtgtggtggt 300
tacgcgcagt gaaccgctac acttgccagc gccctagcgc ccgctccttt cgctttcttc 360
ccttcctttc tcgccacgtt cgccggcttt ccccgtcaag ctctaaatcg ggggctcctt 420
tanggttccg atttagtgct ttacgggcac ctcgacccca aaaaaacttg attangggta 480
atggntcacg tantngggcc atcgccctga tagacggttt ttcgcctttg acgttngngt 540

<220>
<221> misc feature
<222> (408)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (410)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (429)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (442)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (460)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (485)
<223> n equals a,t,g, or c

<400> 796
ggcacgaggt gtcggcggct tccctggtcc cggcggtccc ccagcccgag gcggacaacc 60
tgacgctgcg gtaccggtcc ctggtgtacc agctgaactt tgatcagacc ctgaggaatg 120
tagataaggc tggcacctgg gccccccggg agctggtgct ggtggtccag gtgcataacc 180
ggcccgaata cctcagactg ctgctggact cacttcgaaa agcccaggga attgacaacg 240
tcctcgtcat ctttagccat gattctggtc gaccgagatc aatcagttga tcgccggggt 300
tganttctgt tccggttttg caggtgtttn tttncntttc aagcattcaa ttgttancct 360
aacgagtttt ccagtaagtg gaccncagag gatttntccc agagaacntn ccgaagaatg 420
ccctttttna aattgggggc ancaaattga ggtttcccgn tttttgggca tttaaggggg 480
gggcnaattt ttccagg 497

<210> 797
<211> 589
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (241)
<223> n equals a,t,g, or c

<400> 795
aattcggcan aggnctaagg gagctgacgg agagggccac cgcccagcaa tagacggtgt 60
ctcagcctgc cgagccgcag tttccgtggt gtgagtaagt ccgggcccgt gtcccctctc 120
ccgccgccgc catgggctgc acgttgagcg ccgaagacaa ggcggcagtg gagcgatgaa 180
gnatgatcga ccgcaactta cgggaggacg gggaaaaagc ggccaaagaa gtgnaagntg 240
ctgctacttc ggtgctggag aatctggtta aaagcaccat ttgtgagaca gatgaaaatc 300
atttcatgag gntgggtatt cagaggtnga atgttaaaca atattaaagt tagttntttt 360
ncagcatnnt tgttncagtg ccntcattgc aatnttnagt ggccttggga ngggtnaaaa 420
aattgatttt ggggaantnt cncagggcaa ttgttgcccg gcaattnttt nttntagntn 480
gtcanttttt tngaggg 497

<210> 796
<211> 497
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (304)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (330)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (334)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (336)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (357)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (385)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (396)
<223> n equals a,t,g, or c

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (437)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (439)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (442)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (467)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (471)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (474)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (478)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (480)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (485)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (492)
<223> n equals a,t,g, or c

<222> (328)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (356)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (361)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (368)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (369)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (375)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (383)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (394)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (397)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (411)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (416)

<221> misc feature
<222> (443)
<223> n equals a,t,g, or c

<400> 794
ggcacgagtg cacctggagc tccaggaggc aagggtgatg ctggtgcccc tggtgaacgt 60
ggacctcctg gattggcagg ggccccagga cttagaggtg gaactggtcc ccctggtccc 120
gaaggaggaa agggtgctgc tggtcctcct gggccacctg gtgctgctgg tactcctggt 180
ctgcaaggaa tgcctggaga aagaggaggt cttggaagtc ctggtccaaa gggtgacaag 240
ggtgaaccag gcggtccagg tgctgatggt gtcccaggga aagatggccc aaggggtcct 300
antggtccta ttggtcctcc tggcccagtt ggccagcctg gagataaagg gtgaaggtgg 360
tgccccccgga tttccangta taagttggac ctgtggtnag cctggtgaga gaggtgaaat 420
ggccttncag gacngttggt ttncctggtg ttcctgga 458

<210> 795
<211> 497
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (10)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (14)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (182)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (234)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (238)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (312)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<221> misc feature
<222> (509)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (522)
<223> n equals a,t,g, or c

<400> 793
tgcgagaaga cgacagaagg ggcccgcagc gccggagtca aagccggttc ccgcncagtc 60
ccgtcctgca gcagtctgcc tcctctttca acatgacaga tgccgctgtg tccttcgcca 120
aggacttcct ggcaggtgga gtggccgcag ccatctcaag acggcggtan gcccatcgag 180
cgggtcaagc tgctgctgca gttgcaatgc cagcaagcag atcactgcag ataagcaatg 240
caaaggcatt atagactgcg tggtccgtat tcccaaggag caggattctg tccttctggc 300
gcngtaactg gccatgtcat cagatantnc ccanccaggt tcttaatttc gnctttcaag 360
nttaatacaa gcanatnttc nggggtggtg tggnacanga gaacccattt tggggctaan 420
ttgcagggaa tttgggcatc gggtggttcc ncgggggcca aattccnggg ttttgngtaa 480
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atcaagatca tcgcaccccc agagcgcaag tactcggtgt ggatcggtgg ctccatcctg 180
gcctcactgt ccaccttcca gcanatntgg attacaagca ggagtacnac aantcgggnc 240
cctccatcgt ccaccgcaaa tgcttctaac ngactcncan atgcttacca ttgctgcatg 300
ggttaattaa naataaaaan tttgcccctg gcaaatgcac acacctcatg cttacctccc 360
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<220>
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ttttgctttg ctggacttct tataggccag actgaagtgg atatcatgag tnatgctaca 120
caggctatat ttgaaatact ggagaaatcc tggttgcccc agaattgtac actggttgat 180
atgaagattg aatttggtgt tgatgtaacc accaaagaaa ttgttcttgc tgatgttatt 240
gacaatgatt cctggagact ctggccatca ggagatcgaa gccaacagaa agacaaacag 300
tcttatcggg acctcaaaga agtnactcct gaagggctcc aaatggtaaa gagaaacttt 360
gagtgggttg cagagagagt agagttgctt ttgaaatcag anagtcagtg cagggttgta 420
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<212> DNA
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cgggaattcc cgggtcgacc cacgcgtccg cttcctgccg tcgcgtttgc acctcgctgc 120
tccacctctg ggcgcattc caaccttcca gcctgcgacc tgcggagaaa aaaaattact 180
tattttcttg ccccatacat accttgaggc gagcaaaaaa attaaatttt aaccatgagg 240
gaaatcgtgc acatccaggc tggtcagtgt ggcaaccaga tcggtgccaa gttctgggag 300
gtgatcagtg atgaacatgg gcatcgaccc caccgggcac ctaccacggg ggacagcgac 360
ctgccagctg ggaccgcatn ttctgtgtac tgacaatgga agccacaggt ggnaaatgat 420
gtttcctcgt ggccatcctg gtgggatctn agaacctggg naccatggaa tctggttgng 480
ttcaggtccc ttttgggcca ntgttttaga ccagngaa 518

<210> 790
<211> 386
<212> DNA
<213> Homo sapiens

<400> 790
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cctacagcta tcgccagtcg tcggccacgt cgtccttcgg aggcctgggc ggcggctccg 120
tgcgttttgg gccgggggtc gcttttcgcg cgcccagcat tcacgggggc tccggcggcc 180
gcggcgtatc cgtgtcctcc gcccgctttg tgtcctcgtc ctcctcgggg ggctacggcg 240
gcggctacgg cggcgtcctg accgcgtccg acgggctgct ggcgggcaac gagaagctaa 300
ccatgcagaa cctcaacgac cgcctggcct cctacctgga caaggtgcgc gccctggaag 360
cggccaacgg cgagctagag gtgaaa 386

<210> 791
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<212> DNA
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gcgtctgccc tggagcagtt cgtgaacagt gtccgacagc tctcagctca aggtttgtga 120
agttttctat gcccagtgtt cctgacttcg aaacgctatt ctcacaggtt cagctcttca 180
tcagcacttg taatggggag cacattcgat atgcaacaga cacttttgct gggctttgcc 240
atcagctaac aaatgcactt gtggaaagaa aacagcccct gcgaggaatt ggcatcctta 300
agcaagccat agacaagatg cagatgaata caaaccagct gacctcaata catgntgatc 360
tctgccagct tgtttgctag caaaangnct tnagctngcc cttca 405

<210> 789
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<212> DNA
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<211> 339
<212> DNA
<213> Homo sapiens

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<220>
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<223> n equals a,t,g, or c

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<220>
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<222> (332)
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<400> 787
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cctcctgccc aggctccgga catggacatc ttccagcaac agatctcgag aagacagctg 120
gctaaaatcc ttatttgtcc ggaaagttga tccaagaaaa gatgcccact ccaatctcct 180
atccaaaaag gaaacaagca atctatacaa attacagttt cacaatgtta aaccggaatg 240
cctagaanca tacaacaaaa tttgtcaaga ggtgttgcca aagattcacg annnataaac 300
actacccttg tactttggtt gggggacttg gnaacacgt 339

<210> 788
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<212> DNA
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<221> misc feature
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<222> (385)
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<220>
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<222> (420)
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<220>
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<222> (458)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (469)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (486)
<223> n equals a,t,g, or c

<220>
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<222> (508)
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cacgtgcccc aagatcaagc aggaggcggt ctcttcgtgc acccacttgg gcgctggacc 120
ccctctgcag caatggccac cggcgggctg ccacacggac ttccccctgg ggacggcant 180
tccccagcag gacttacccc ggaccctggg tcttgaggga agtgctgagc agcaggggac 240
tgttcaccct gccctgccgg tttcctnccg ggtttccatc cccacccggg ggcccaattt 300
acccatnnct ttcctngncc ccattcagat gcagccgnaa gttnccgnnc gttncattaa 360
ccaaggggtt tatgccaacc ggttnctgga tgccaaagga ggcccaagtc aaagggggn 420
aaggaggttg tgggccccgg aaaaggaccg gcaaccanat tttgattang gggtttggga 480
aaaacnttca aaaaaggggt tttcccantt tt 512

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gatgtattag ggtgcagcgc tcattgttcc ttgacgcaga gtcccaaaat gaatatccaa 120
gagcagggtt tccccttgga cctcggagca agtttcaccg aagatgctcc cccganccccn 180
agtgcctggt gaggagggag aactggtgtc cacagacccg aggcccgcca gctacagttt 240
ctgctccggg naangtgttg gcattaaagg tgagacttcg acggccactc cgaagcgctc 300
ggntctngac ctggggtatg agcctgaggn agtgcttccc naacccanca taattt 356

<210> 786
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<212> DNA
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ctctctctgg aaaagcagac tcgtactgct tccgatatgg tatcgacatc ccgtatctta 300
gttgccagta gtggaagatg tgctaatgan ggctaaaaga atgggattta anttaatgna 360
aaatgattat gcntttgtcc caaaaggcgg attcagttta aaacaagctg ttgcccaaaa 420
tggttncaac atggncgtac nttatgtttg aaggaaantc acagaacntt cccatccaaa 480
cnttngattn aattgataat cccacgaatg ggtttaccga ggccaagatt ttatgttgga 540
aatggagcgt gcgnactgga tcaaaaccnt agccacnatt aaagga 586

<210> 784
<211> 226
<212> DNA
<213> Homo sapiens

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<222> (20)
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<220>
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<222> (208)
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gcccagtctc tactcagcac cgaccgggag gcctccatcg acatcctcca ctccatcgtg 120
aagcgtgaca ttcaggaaaa cgatgaagag gcagtgcaag tcaaagagca gagcatcctg 180
gaactgggat ctctcctggc aaagactnga caagctgcag agctta 226

<210> 785
<211> 356
<212> DNA
<213> Homo sapiens

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<222> (482)
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ccgaagcagg gggacagcaa gggacgctca ggcgggcgac catggcggac ggcggctcgg 120
agcgggctga cgggcgcatc gtcaagatgn aggtggacta cagcgccacg gtggatcagc 180

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ggagtgcaat ggcatgatct cagctcactg caaccttcgc ctcctgggtt caagcgattc 120
tcctgcctcc gcctcctgag tagctgggat tataggcaca caccaccacg cccagctaat 180
tttttgtatt tttagtagag acagagtttc accatgttgg ccaggctggt cttggaactc 240
ctggaccttg tggatccacc cacctcggcc tcccagagtg ctggggatta cagggcatga 300
gccaccacgg cttgggctna aggaacacct aanttttatg tttcttgggn tcaaaaacca 360
gtttccattc nnangttgtc ctcacaagan ggttantggt ggtggagaca gcaggggagg 420
gagggaagag ngtggtttgt aantggttca antcaggcan taagcgattt tagctttaat 480
ttaaagtctt cngtccagnt ttaagcactt ggtaagacag ggctggaagt agcttttcna 540
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<210> 783
<211> 586
<212> DNA
<213> Homo sapiens

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<222> (29)
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<220>
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<212> DNA
<213> Homo sapiens

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<222> (459)
<223> n equals a,t,g, or c

<400> 781
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gagccccgga ggtcgaggct acagtgagcc aagagtgcac tactgtactc cagccagggn 120
aagagagcga gaccctgtct caataaataa ataaataaat aaataaataa ataaataaaa 180
acaaagttga ttaagaaagg aagtataggc caggcacagt ggctcacacc tgtaatcctt 240
gcattttgga aggctgaggc aggaggatca ctttaggcct ggtgtgttca agaccagcct 300
ggtcaacata gtgaggacac tgtctcttac caaaaaaagg agggaaggga cacatttcaa 360
atgaaacaaa ttagaatgtt atttatgttc taagtgcctc cagttcaaaa ttttttggat 420
ntttgagntn tggttacgga atacgttagg gggccaaang gatttgtaag tctttaatgc 480
cgtttttca gaaaccta 498

<210> 782
<211> 541
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature

<221> misc feature
<222> (421)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (425)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (428)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (430)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (431)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (432)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (433)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (443)
<223> n equals a,t,g, or c

<400> 780
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ctgaggcagg aggatcactt taggcctggt gtgttcaaga ccagcctggt caacatagtg 120
agacactgtc tctaccaaaa aaaggaagga agggacacat atcaaactgn aacaaaatta 180
gaaatgtaat tatgttctaa gtgcctccaa gttcaaaact tattngaatg ttgagagttt 240
ggttacggaa ttcggttngg ggggccaaag ggttgtttta gnttttnaat nccggtntnt 300
ttcgggnaac ccttgggaat ttttggggct ccttgtagnn nncccccttt nggagggggg 360
nntnnnnttg ttttnccncc nngggggggnn tttnnttngg ggggancttt tttttcnccn 420
ngttnggntn nnnggttttt ttngggtttt ttt 453

<210> 781
<211> 498

<220>
<221> misc feature
<222> (381)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (382)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (389)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (390)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (394)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (395)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (398)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (406)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (417)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (420)
<223> n equals a,t,g, or c

<220>

<220>
<221> misc feature
<222> (341)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (342)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (351)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (361)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (362)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (364)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (365)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (366)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (375)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (378)
<223> n equals a,t,g, or c

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (225)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (258)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (282)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (287)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (291)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (297)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (299)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (307)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (339)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (340)
<223> n equals a,t,g, or c

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ttttgctttt gtggttgagg gaaggacaag agataagagg ttgttacctc agtaaaaacc 1200
ttcaggccac aaagcaaaaa gttgcatagc cacaacgaag atctagttgg atatagtttt 1260
tgatttaagt tgcagttata gccaatttag gctaatgctt ggttttggag cttttataca 1320
caacgttttt gttaggcatc acagttttgc aacctctgct ccaaagrgaa aaatagratg 1380
agtttcttt cttttttttt ttttngggag tcagagtctc gctcycytgk ccmrggctgg 1440
gagtgccawa gcgcgatctg ggctccact gccaacctnc cgcc 1484

<210> 779
<211> 1343
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1313)
<223> n equals a,t,g, or c

<400> 779
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agaggagaaa agtcttagag tgtggaaaag gcaaccaggt tggccgtaag gtgcctgctg 120
gaatgcgtgt gcctccacac gggtctgggc atccggactg ataaccagcc ggccagactg 180
agggatggaa ggcactgaga tgggggcccg tccaggcgga cacccgcaga aatggagctt 240
tctgtggtct cttgcactct ggctgcctct tgccctctct gtgtctctct ttcttggtct 300
ctccctctct cctcctcagc ctggtctttc tctttggtgc acacttagtt attgttgtga 360
gcaatggaag ttcaaaggaa ctccctctcc agctcttctg aatcttggga cacagcctaa 420
aaaggacaaa aagttagaag acagcatagc aactcagctc agggagctac cagagaaaaa 480
tagcaactga tgtgggtgct tttttttttt ttttaatttg aataaaaaga attagaagtg 540
atgtcctttt ataaaatgcc ttctccccct tcccgcctac agtctcttcc tctcccctta 600
gaggggggaa agtgtataaa cctacagggt tgtgagtctg aaaagaggat ccccctcacc 660
cccaccctgg gcagagcagt gggggttggg gggtgggaga gggggacaca gatcctggca 720
cactgtggat atttcttgca gattgcagtc tcttgtggcc caaacaggtt aggtagacta 780
tcgcctctgg caggtgccac cttttggtac caacatgttc tgaggtgtta ggatttgggt 840
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aaaagctaaa ggccgctgtg agtcctggtg gcaggctctc catggatgta gcatatcgaa 960
gataattttt atactgcatt tttatggatt attttgtaat gtgtgattcc gtctgctgag 1020
gaggtgggag gggctccagg gaaagccacc caccttcagt gaggttgctc cccagctgag 1080
cgcaccgggc atgggatgtg gaggctggcg acacaccctg tgcctctcca aggctgggcg 1140
cgtggggcgt ccagagtctc tctgggtctc agatgtccat ctgccacctc ttgttaaggc 1200
tctagccaga agggagggtg agggtagaag aaagttattc ccgaagaaaa aaagaatgaa 1260
aagtcattgt actgaactgt ttttatattt ttaaaagtta ctatttaaag gtnaaaaaaa 1320
aagggggggc ccggtaccca att 1343

<210> 780
<211> 453
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (170)

ccatccagcg cttctacaag aacgagggag gtacatggtc agtggagaag gtgatccagg 960
tgccccccaa gaaagtgaag ggctggctgc tgcccgaaat gccaggcctg atcaccgaca 1020
tcctgctctc cctggacgac cgcttcctct acttcagcaa ctggctgcat ggggacctga 1080
ggcagtatga catctctgac ccacagagac cccgcctcac aggacagctc ttcctcggag 1140
gcagcattgt taagggaggc cctgtgcaag tgctggagga cgaggaacta aagtcccagc 1200
cagagcccct agtggtcaag ggaaaacggg tggctggagg ccctcagatg atccagctca 1260
gcctggatgg gaagcgcctc tacatcacca cgtcgctgta cagtgcctgg gacaagcagt 1320
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cagcccttgc ccatganstc cgctaccctg gggcgattg tagctctgac atctggattt 1500
gaactccacc ctcatcaccc acactcccta ttttgggccc tcacttcctt ggggacctgg 1560
cttcattctg ctctctcttg gcacccgacc cttggcagca tgtaccacac agccaagctg 1620
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gtgctgcttt tccatgagct cttggaggca ccaagaaata aactcgtaac cctgtccttc 1740
aaaaaaaaaa aaaaaaaaaa aaaaaagggg ggcgctctaa aagatcctcc aagggccaag 1800
cttacnct 1808

<210> 778
<211> 1484
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1405)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1479)
<223> n equals a,t,g, or c

<400> 778
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gcagcgccag gtccggtgtt ggggtgtccg agttgccgcc ggagaggagt ggcctcgccc 120
gcttgagttt tgattcatca tggataatct gtcatcagaa gaaattcaac agagagctca 180
ccagattact gatgagtctc tggaaagtac gaggagaatc ctgggtttag ccattgagtc 240
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catagaagaa ggcttggacc aaataaataa ggacatgaga gagacagaga agactttaac 360
agaactcaac aaatgctgtg gcctttgtgt ctgcccatgt aatagaacaa agaactttga 420
gtctggcaag gcttataaga caacatgggg agatggtgga gaaaactcac cttgcaatgt 480
agtatctaaa cagccaggcc cggtgacaaa tggtcagctt cagcaaccaa caacrggagc 540
agccagtggt ggatacatta aacgcataac taatgatgcc agagaagatg aaatggaaga 600
gaacctgact caagtgggca gtatcctggg aaatctaaaa gacatggccc tgaacatagg 660
caatgagatt gatgctcaaa atccacaaat aaaacgaatc acagacaagg ctgacaccaa 720
cagagatcgt attgatattg ccaatgccag agcaaagaaa ctcattgaca gctaaagcta 780
ctgctgttct tctttatcat ttattcactt ccgtagctcc tccttgaaag ttattacctt 840
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ccttccttct agtattttct ttctcaattc atacgcttag attggttttc atatgtcatg 1020
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tcaggcctca gctgcagcag ccacagctga gctgctgaag aaacaggagg agctcaaccg 600
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gcttccctct gctgtgccac ggctgttgct tcggttattt aaataaaaag aaagtggaac 1560
tggaactgaa aaaaaaaaaa aaaaaaaaaa aaaaagggsg gccgc 1605

<210> 777
<211> 1808
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1457)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1806)
<223> n equals a,t,g, or c

<400> 777
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atcaaagtgt accagtcggc agcatggcta cgaaatgtgg gaattgtgga cccggctact 120
ccacccctct ggaggccatg aaaggaccca gggaagagat cgtctacctg ccctgcattt 180
accgaaacac aggcactgag gccccagatt atctggccac tgtggatgtt gaccccaagt 240
ctccccagta ttgccaggtc atccaccggc tgcccatgcc caacctgaag gacgagctgc 300
atcactcagg atggaacacc tgcagcagct gcttcggtga tagcaccaag tcgcgcacca 360
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cccgggcccc aaagctgcac aaggtcattg agcccaagga catccatgcc aagtgcgaac 480
tggcctttct ccacaccagc cactgcctgg ccagcgggga agtgatgatc agctccctgg 540
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ccgaakccca kgakcccggg gcgcccgcgg cgggcatgag gcggcgccgg cggctgcagc 180
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gtggtccaaa taatcatctg ttgaaaaata tgaagaaaat tgtggatcaa aacacaaagc 720
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ccaatctcca tggaggagac cttgtggcca attatccata tgatgagacg cggagtggta 840
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gtaacccaat tgcgaatgcc accatctccg tggaaggaat agaccacgat gttacatccg 1260
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taaatctatc tatataatgt agtatgatgt aatgtggtct ttttttaga ttttgtgcag 1560
ttaatactta acattgattt atttttaat catttaaata ttaatcaact ttccttaaaa 1620
taaatagcct cttaggtaaa aatataagaa cttgatatat ttcattctct tatatagtat 1680
tcatttcct acctatatta cacaaaaaag tatagaaaag atttaagtaa ttttgccatc 1740
ctaggcttaa atgcaatatt cctggtatta tttacaatgc agaatttttt gagtaattct 1800
agctttcaaa aattagtgaa gttcttttac tgtaattggt gacaatgtca cataatgaat 1860
gctattgaaa aggttaacag atacagctcg gagttgtgag cactctactg caagacttaa 1920
atagttcagt ataaattgtc gtttttttct tgtgctgact aactataagc atgatcttgt 1980
taatgcattt ttgatgggaa gaaaaggtac atgtttacaa agaggtttta tgaaaagaat 2040
aaaaattgac ttcttgcttg tacatatagg agcaatacta ttatattatg tagtccgtta 2100
acactactta aaagtttagg gttttctctt ggttgtagag tggcccagaa ttgcattctg 2160
aatgaataaa ggttaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 2220
aaaaaaaaaa aaaaaaaaaa aactcgag 2248

<210> 776
<211> 1605
<212> DNA
<213> Homo sapiens

<400> 776
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gtgggggcac tttcgtctta gcttttggac aagacgcagg cgcaacccac ggctgctgcg 120
gggatccttg tggcccttcc ggtcgrtgga accaatccgt gcacagagaa gcggggcgaa 180
ctgaggcgag tgaagtggac tctgagggct accgctaccg ccactgctgc ggcaggggcg 240
tggagggcag agggccgcgg aggccgcagt tgcaaacatg gctcagagca gagacggcgg 300
aaacccgttc gccgagccca gcgagcttga caaccccttt caggacccag ctgtgatcca 360
gcaccgaccc agccggcagt atgccacgct tgacgtctac aaccctttg agacccggga 420
gccaccacca gcctatgagc ctccagcccc tgccccattg cctccaccct cagctccctc 480

catgtattga agctagaatc gagtcaagaa aaataaagcc ccattctcca actgcaaaat 360
gtgctttccc ataatgaaca ctagtcacca gcacagaata atctccaaca ttttctaaat 420
tctaattgcc aactgtttct atttatattt gatttatatt tcatttggag tctgttacat 480
ggcagcttag gcagactaga tcttgttttt tcccaatgca gcataatgag tatgatctat 540
ttcttttcaa ataatctttg agatcccagg aaaaaaaaaa tgctctgctc cattgagcta 600
taatgtaaat gtgtttgttt aaaaaacagg tgaggcaagt gagtgattta ttgttcctga 660
ggaagtatat ctgatttttt ttctcatact ccaaaagcta gtccctactc tttaataaaa 720
ataatgggta actttttgtt tttcactagc gaacttccat gacatttcct ttctatgtag 780
tgtgattaat gcaatacata ttatagttat ctatacacag tgtaagattt aacaaactga 840
aatgatccac ctcatatgtg agtccgtcca aaagatgtta ctgctctggg tgggccagtg 900
ttctatatcg gttatactaa ctttcattta aagtatttat tctaaaatgc ctctgagaaa 960
cagtaaaaaa taaaaacaac aagttgtcta aaatgcaaca gcttttatag taaatgtaca 1020
tttataaata aaatactcaa atcaaaaa 1048

<210> 774
<211> 1019
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (971)
<223> n equals a,t,g, or c

<400> 774
ggcacgasca cctttccagg gccgcccaat aactccagta tacacggtgg ctccaaacgt 60
tcagagaatt cctactgccg ggatctacgg ggccagttac gtgccatttg ctgctccagc 120
tacagccacg atcgscacac tacagaagaa cgcggcagcc gcggccgccg tgtatggagg 180
atacgcaggc tacatacctc aggccttccc tgctgctgcc attcaggtcc ccatccccga 240
cgtctaccag acatactgag gctggtgacc agcacgaaga cagaccacac aaacaccact 300
gaaggaacgc ttgactattt atgaagaagg aacatgttgg attcacacat gcaacctgaa 360
agtgaagaat gttagcagat ttatttctga attattttat atacatgaag ttttcactag 420
tttttaaga ctattttcaa cttagcatgc ctacgttcat acatttccaa aagacttgca 480
atggttcgtg ccttcattcc atcttttaaa aatttgtatg ctgtactaca tttgtataga 540
ggtttttgtt gttgtttttt taaggatata ttttcagtat gaaggttatt ttcttaactt 600
ctgcactcca gagatttcta ttttgtagta ccttcaataa tatatcaact atatattaaa 660
aaagcacact tgaggagcta gggaactatt ttgaaaaata tatacaatat ttaaagatac 720
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caccgttagg nggggctcat tctccatgtg ccttagcctt aaacatgccc ccactccgc 1019

<210> 775
<211> 2248
<212> DNA
<213> Homo sapiens

<400> 775
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ggggcagcgc gctgctggct ctgtgcgggg cactggctgc ctgcgggtgg ctcctgggcg 120

ttcttttccc cctagtattt ccaacttggg gatgtttggc atcgacgaat ttactgcagt 1440
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cactgaggat gaagagggaa atgccaaact gcagcagcgc cagctcataa cagtcacaat 1560
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aaaaaaaaaa aaaaaaaang ggggg 2485

<210> 772
<211> 432
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (378)
<223> n equals a,t,g, or c

<400> 772
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accgtgggcc ctcacagcat tgcctcacct cccgaggata ggacagtcaa agacagcacc 180
ccaagttctc tggactcaga tcctctgatg gccatgctgc tgaaacttca agaagctgcc 240
aactacattg agtctccaga tcgagaaacc atcctggacc ccaaccttca ggcaacactt 300
taagggttcg gcaatcactg tcacccccgg acagcagaac gcttggcatc agcttatctt 360
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ggaggaagaa ca 432

<210> 773
<211> 1048
<212> DNA
<213> Homo sapiens

<400> 773
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ttagcagagt accactagta atgcacaaac atgtacaata tggtcattca taaccgattt 180
ttatagaata ctttttacat gtgcaactcc atccgttatg taaggattac atgaatattg 240
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gtgaaatggc agtatagtcc atgatatcta aggagttggc aagcttaaca aaacccattt 780
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cttgcggtta attatgcaaa tgatagtttg tgataattgg tccagtttta cgaacaacag 900
atttctaaat tagagaggtt aacaagacag atgattacta tgcctcatgt gctgtgtgct 960
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tctgatttta tttttcaaag tttttcatt tatgaacaca ttttcattgg tatattattt 1560
aaggaatatc tcttgatata gaattttat attaaaaatg atttttcttt gcttaaaaaa 1620
aaaaaaaaaa aactcga 1637

<210> 771
<211> 2485
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (2479)
<223> n equals a,t,g, or c

<400> 771
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gattatatat gtgttggtct agttctgtgc tattttttt ccactggcct gtttgtctat 120
cctttgttta ctaccaccaa gctataactc ttgatagctg gtaatgaagt cttccaattt 180
tgttcaccct caagattgtc ttctggcttt tcgtatttcc aaataaattg taaaattgat 240
ttgccatttt tcacacacac acccccttgct ggtttcttga ttgggattgc attaagtctt 300
ttgatgattt gagaattgac atccttacag tattgagtat tctaacctgt gaatatggta 360
gaaaccattg tgtattcagt tatttgattt ctttcagtta tgttttataa ttttctgtgt 420
agaggtcttg tatatgtttc attagattta ttctttggta tttgtttttt gatactatta 480
taaatggtat tgttttaaat ttttattttc taattatagc aacttgtatg tagagtcatg 540
tgccacttta tgatggggat atgagaaatg cattgttagg cagtttcatc atgcaaacat 600
catagagtgt acttacgcaa atcatgcaaa catcatagag tgtacttaca caaacctaaa 660
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cctatacagc atgttactct actgaatacc gtaagcagtt gtgacacaat gatgagtatt 780
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aacatgaaag tgcatccttt ccctccaaaa aaaaaaaaaa aaaaaaaa 2569

<210> 770
<211> 1637
<212> DNA
<213> Homo sapiens

<400> 770
aaaagctgga gctccaccgc ggtggcggcc gctctagaac tagtggatcc cccgggctgc 60
aggaattcgg cacgagaaac ctgcggaaaa tggtagcgat ggcggctggg ccgagtgggt 120
gtctggtgcc ggcgtttggg ctacggttgt tgttggcgac tgtgcttcaa gcggtgtctg 180
cttttggggc agagttttca tcggaggcat gcagagagtt aggcttttct agcaacttgc 240
tttgcagctc ttgtgatctt ctcggacagt tcaacctgct tcagctggat cctgattgca 300
gaggatgctg tcaggaggaa gcacaatttg aaaccaaaaa gctgtatgca ggagctattc 360
ttgaagtttg tggatgaaaa ttgggaaggt tccctcaagt ccaagctttt gttaggagtg 420
ataaacccaa actgttcaga ggactgcaaa tcaagtatgt ccgtggttca gaccctgtat 480
taaagctttt ggacgacaat gggaacattg ctgaagaact gagcattctc aaatggaaca 540
cagacagtgt agaagaattc ctgagtgaaa agttggaacg catataaatc ttgcttaaat 600
tttgtcctat ccttttgtta ccttatcaaa tgaaatatta cagcacctag aaaataattt 660
agttttgctt gcttccattg atcagtcttt tacttgaggc attaaatatc taattaaatc 720

<220>
<221> misc feature
<222> (1523)
<223> n equals a,t,g, or c

<400> 768
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gtagttgaat ctacaatctg ctcagggatt tatactcaat gccaatttga tatcatgctg 120
ggagggactg attgcagaac cttcttgaca agccacataa atctaaagaa aacgttgtgt 180
gacgtgatcc tcatggtcca ggaaagaaag atacctgctc atcgtgttgt tcttgctgca 240
gccagtcatt tttttaactt aatgttcaca actaacatgc ttgaatcaaa gtcctttgaa 300
gtagaactca aagatgctga acctgatatt attgaacaac tggtggaatt tgcttatact 360
gctagaattt ccgtgaatag saacaatgtt cagtctttgt tggatgcagc aaaccaatat 420
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tccatgattg agccaggagg atcatgggtg gtatttttaa agacagtatt ttgctgtggg 1500
gtggtccaga ttggttttag gtngtcttgg ac 1532

<210> 769
<211> 2569
<212> DNA
<213> Homo sapiens

<400> 769
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cgcccagagg ccgctgagcc caggaagaag aagtggacac tgagcctgaa gaacctgcgg 120
ccggaggaca gcggcaaata cacctgccgc gtgtcgaacc gcgcgggcgc catcaacgcc 180
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aaggggggcc cn 3072

<210> 767
<211> 1321
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1321)
<223> n equals a,t,g, or c

<400> 767
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agtgctcgct cctgctcggg gcgctgcggc cccgggcgtc gccatgacca gtgagctgga 120
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ttactcggtg accgacgcgg tggccctgcg ggtgcgctcg ggaatcctgg agcagactgg 240
cgccacggca gcggtgctgc agagcgacac catggaccat taccgcacct tccacatgct 300
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aacaggcatc accctcaaga gctgccggag acagtttgac aactttaaac gggtcttcaa 540
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aggtgcctcc caacgctccg cccacgctga caataaagtt gctctgagtt tggaaaaaaa 1260
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1320
n 1321

<210> 768
<211> 1532
<212> DNA
<213> Homo sapiens

<211> 3072
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (3072)
<223> n equals a,t,g, or c

<400> 766
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ttactcattg gaggaacagt accttggctt ggctcttgac gtggacagaa ytaaaaagga 120
csaagaagag gaagaagacc aagrcccacc atgccccagg ctcagcaggg agctgctgga 180
ggtagtagag cctgaagtct tgcaggactc actggataga tgttattcaa ctccttccag 240
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aagaagggga agaagatcaa agaaggaaag aagaagggga agaaaagaag gggaagaaga 420
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<223> n equals a,t,g, or c

<400> 764
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aggcgcctgt ggcccaaggc gat 1703

<210> 765
<211> 262
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (156)
<223> n equals a,t,g, or c

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attgcaaagc ttaagtaaaa acaagtctcg accganatcc ttcatgatga gagatttggg 180
gacacttctc tctcctgtgt gtagttgata gtttggtggt gaagagatgg ctgacagtgt 240
caaaaccttt ctccaggacc tt 262

<210> 766

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<210> 764
<211> 1703
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (368)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (860)

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aaaggttaga tcttagactg tcttgtattt ttctcattcc tgttgattac ctacctcaaa 3060
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ggcccngg 4448

<210> 763
<211> 2890
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (20)
<223> n equals a,t,g, or c

<400> 763
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cggcccagct ctcccgcgcc gactctgcca catcctccgg tgacgtcagc cggggccgcc 180
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<223> n equals a,t,g, or c

<400> 762

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acaagcttat gcagttctta aggacgaagg taaatgagat gtaacttaaa aatagtattg 180
ggaaaatgtt gatagttaac attagtggat ttagactagc cawatgacat agtaggctct 240
gaaacatctt ktcaagtata tgtattttgt gcatgaattt ttgctggaaa kctgtctttc 300
tctgawawac acaackttct tagaatgaaa agaacaatta taawataatt atcctatatg 360
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caatttttag tctaggcgag aggaatatta ggaatgtgac ttctaaattt tacaatagag 660
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<210> 762
<211> 4448
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (3)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (920)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (4433)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (4446)

<400> 760
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<212> DNA
<213> Homo sapiens

<220>
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<222> (1728)
<223> n equals a,t,g, or c

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ctagtttccc tagagtcatt tttgaaacca ctgattgcaa acctccctga caatttttaa 180

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<211> 2048
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<221> misc feature
<222> (1963)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2006)
<223> n equals a,t,g, or c

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nctgcgattc tgaacccggg a 1221

<210> 758
<211> 631
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (630)
<223> n equals a,t,g, or c

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<210> 759
<211> 2496
<212> DNA
<213> Homo sapiens

<400> 759
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<212> DNA
<213> Homo sapiens

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<222> (1071)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1081)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1201)
<223> n equals a,t,g, or c

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<220>
<221> misc feature
<222> (3654)
<223> n equals a,t,g, or c

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<211> 1280
<212> DNA
<213> Homo sapiens

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<210> 756
<211> 3665
<212> DNA
<213> Homo sapiens

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<210> 754
<211> 1795
<212> DNA
<213> Homo sapiens

<400> 754
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tggcagatgg cggcggtgcc gggggcacyt tccagcccta cctagacacc ttgcggcagg 120
agctgcagca gacggaccca acgctgttgt cagtagtggt ggcggttctt gcggtgctgc 180
tgacgctagt yttctggaag ttaatccgga gcagaaggag cagtcagaga gctgttcttc 240
ttgttggcct ttgtgattcc gggaaaacgt tgctctttgt caggttgtta acaggccttt 300
atagagacac tcagacgtcc attactgaca gctgtgctgt atacagagtc aacaataaca 360
ggggcaatag tctgaccttg attgaccttc ccggccatga gagtttgagg cttcagttct 420
tagagcggtt taagtcttca gccagggcta ttgtgtttgt tgtggatagt gcagcattcc 480
agcgagaggt gaaagatgtg gctgagtttc tgtatcaagt cctcattgac agtatgggtc 540
tgaagaatac accatcattc ttaatagcct gcaataagca agatattgca atggcaaaat 600
cagcaaagtt aattcaacag cagctggaga aagaactcaa caccttacga gttacccgtt 660
ctgctgcccc cagcacactg gacagttcca gcactgcccc tgctcagctg gggaagaaag 720
gcaaagagtt tgaattctca cagttgcccc tcaaagtgga gttcctggag tgcagtgcca 780
agggtggaag aggggacgtg ggctctgctg acatccagga cttggagaaa tggctggcta 840

<222> (1429)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1436)
<223> n equals a,t,g, or c

<400> 752
ctttcccgag cctctctccc tggccaggcc ccaggtctcg cagccaggga tggagatggg 60
gggaggggga acctagagtt ctttgtagtg cctccctcag actctaacac actcagcctg 120
gcccccctcct cctattgcaa ccccctcccc cgctcctccc ggccaggcca gctcagtctt 180
cccagccccc attccacgtg gaccagccag ggcgggggta gggaaagagg acaggaagag 240
cangagccag ttctgggagg cgggggggaag gaggttggtg gcgactccct cgctcgccct 300
cactgccggc ggtcccaact ccaggcacca tgttccccgc gggccccccc agccacagcc 360
tcctccggct ccccctgctg cagttgctgc tactggtggt gcaggccgtg gggaggggggc 420
tgggccgcgc cagcccggcc gggggccccc tggaagatgt ggtcatcgag aggtaccaca 480
tccccagggc ctgtccccgg gaagtgcaga tgggggattt tgtgcgctac cactacaacg 540
gcacttttga agatggcaag aagtttgatt caagctatga tcgcaacacc ttggtggcca 600
tcgtggtggg tgtggggcgc ctcatcactg gcatggaccg aggcctcatg ggcatgtgtg 660
tcaacgagcg gcgacgcctc attgtgcctc cccacctggg ctatgggagc atcggcctgg 720
cggggctcat tccaccggat gccaccctct acttcgatgt ggttctgctg gatgtgtgga 780
acaaggaaga caccgtgcag gtgagcacat tgctgcgccc gccccactgc ccccgcatgg 840
tccaggacgg cgactttgtc cgctaccact acaatggcac cctgctggac ggcacctcct 900
tcgacaccag ctacagtaag ggcggcactt atgacaccta cgtcggctct ggttggctga 960
tcaagggcat ggaccagggg ctgctgggca tgtgtcctgg agagagaagg aagattatca 1020
tccctccatt cctggcctat ggcgagaaag gctatggtga gggtgggcaa ggacacaagg 1080
ggaaattccg cagaagaggg aaaaaccagg cctccacata cagttgctca ggttgtatac 1140
tgcacgaggg catccaacca aggactcaag gtgggatgaa atctaccctt ggtgctacta 1200
agaaggggtg ctttggccgg gcgtggtggc tcacgcttgt aatcccagca ctttgggaag 1260
ccaaggcggg aggatcacga ggtcaggaga tcgagaccac ggtgaaaccc cgtctctact 1320
aaaaatacaa aaaaattagc ccgggcgtgg tgggggcgcc tgtagtccca gctactcgga 1380
anaggcttar gcaggaaaat gacgtgaacc cgggaagcgg agcttgcant gagccnaaat 1440
cggccacttg acttcaacct gggtgacaaa cgagactttt cttaa 1485

<210> 753
<211> 1756
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1740)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1756)
<223> n equals a,t,g, or c

<400> 753

<210> 751
<211> 1598
<212> DNA
<213> Homo sapiens

<400> 751
aattcccggg tccacccacg acgtccggtt acggccgaaa agatggcggt cttggcacct 60
ctaattgctc tcgtgtattc ggtgccgcga ctttcacgat ggctcgccca accttactac 120
cttctgtcgg ccctgctctc tgctgccttc ctactcgtga ggaaactgcc gccgctctgc 180
cacggtctgc ccacccaacg cgaagacggt aacccgtgtg actttgactg gagagaagtg 240
gagatcctga tgtttctcag tgccattgtg atgatgaaga accgcagatc catgttcctg 300
atgacgtgca aacccccccct atatatgggc cctgagtata tcaagtactt caatgataaa 360
accattgatg aggaactaga acgggacaag agggtcactt ggattgtgga gttctttgcc 420
aattggtcta atgactgcca atcatttgcc cctatctatg ctgacctctc ccttaaatac 480
aactgtacag ggctaaattt tgggaaggtg gatgttggac gctatactga tgttagtacg 540
cggtacaaag tgagcacatc acccctcacc aagcaactcc ctaccctgat cctgttccaa 600
ggtggcaagg aggcaatgcg gcggccacag attgacaaga aaggacgggc tgtctcatgg 660
accttctctg aggagaatgt gatccgagaa tttaacttaa atgagctata ccagcgggcc 720
aagaaactat caaaggctgg agacaatatc cctgaggagc agcctgtggc ttcaaccccc 780
accacagtgt cagatgggga aaacaagaag gataaataag atcctcactt tggcagtgct 840
tcctctcctg tcaattccag gctctttcca taaccacaag cctgaggctg cagcctttta 900
tttatgtttt ccctttggct gtgactgggt ggggcagcat gcagcttctg attttaaaga 960
ggcatctagg gaattgtcag gcaccctaca ggaaggcctg ccatgctgtg gccaactgtt 1020
tcactggagc aagaaagaga tctcatagga cggagggggga aatggtttcc ctccaagctt 1080
gggtyagtgt gttaactgct tatcagctat tcagacatct ccatggtttc tccatgaaac 1140
tctgtggttt catcattcct tcttagttga cctgcacagc ttggttagac ctagatttaa 1200
ccctaaggta agatgctggg gtatagaacg ctaagaattt tcccccaagg actcttgctt 1260
ccttaagccc ttctggcttc gtttatggtc ttcattaaaa gtataagcct aactttgtcg 1320
ctagtcctaa ggagaaacct ttaaccacaa agtttttatc attgaagaca atattgaaca 1380
accccctatt ttgtggggat tgagaagggg tgaatagagg cttgagactt tcctttgtgt 1440
ggtaggactt ggaggagaaa tcccctggac tttcactaac cctctgacat actccccaca 1500
cccagttgat ggctttccgt aataaaaaga ttgggatttc cttttgaaaa aaaaaaaaaa 1560
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaag 1598

<210> 752
<211> 1485
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (243)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1382)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<211> 1144
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1117)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1121)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1127)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1130)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1137)
<223> n equals a,t,g, or c

<400> 750
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tgtttgctgt ctggatggcc aatgagcctg tctccttttc tgtggccaat ctgaaggcct 120
tcgttggaag tgttgtttac agtaatcctt accaagataa catactgtcc tccagaatac 180
caagtattag gtgacactag ctcaagctgt tgtcttcaga gcagttacca agaagctcgg 240
tgcacaggtt ttctctggtt cttacaggaa ccacctactc tttcagtttt ctggcccagg 300
agtggggtaa atcctttagt tagtgcattt gaacttgata cctgtgcatt cagttctgtg 360
aatactgccc tttttggcgg ggtttcctca tctccccagc ctgaactgct caactctaaa 420
cccaaattag tgtcagccga aagkaggttt caagatagtc ctgtcagtat ttgtggtgac 480
cttcagatta gacagtcttc atttccagcc agtggagtcc tggctccaga gccatctctg 540
agactcgtac tactggatgt tttaatatca gatcattacc caccatatgc ctccccacagg 600
ccaagggaaa acagacacca gaacttgggt tgagggcact accagactga catggccagt 660
acagaggaga actagggaag gaatgatgtt ttgcacctta ttgaaaagaa aattttaagt 720
gcatacataa tagttaagag cttttattgt gacaggagaa cttttttcca tatgcgtgca 780
tactctctgt aattccagtg taaaatattg tacttgcact agctttttta aacaaatatt 840
aaaaaatgga agaattcata ttctattttc taatcgtggt gtgtctattt gtaggataca 900
ctcgagtctg tttattgaat tttatggtcc ctttctttga tggtgcttgc aggttttcta 960
ggtagaaatt atttcattat tataataaaa caatgtttga ttcaaaattt gaacaaaatt 1020
gttttaaata aattgtctgt ataccagtac aagtttattg tttcagtata ctcgtactaa 1080
taaaataaca gtgccaattg caaaaaaaaa aaaaaanaaa ngccccncgn ggggggnccg 1140
gaac 1144

tccggaaatc cattgcccgt gttctcacag ttattaacca gactcagaaa gaaaacctca 300
ggaaattcta caagggcaag aagtacaagc ccctggacct gcggcctaag aagacacgtg 360
ccatgcgccg ccggctcaac aagcacgagg agaacctgaa gaccaagaag cagcagcgga 420
aggagcggct gtacccgctg cggaagtacg cggtcaaggc ctgaggggcg cattgtcaat 480
aaagcacagc tggctgagaa aaaaaaaaaa aaaagggggg gccctttaag agggatccct 540
tcgaaggggc ccaaagctta mgcgtkgcat tscgaacgtc aataggttct cttccctnat 600
tag 603

<210> 749
<211> 2045
<212> DNA
<213> Homo sapiens

<400> 749
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tggccaggtt agggaggggg cgacgctgag atgggggcgg cggcggcgga agcggatcgc 120
actctctttg tgggcaacct tgaaacgaaa gtgaccgagg agctcctttt cgagcttttc 180
caccaggctg ggccagtaat aaaggtgaaa attccaaaag ataaggatgg taaaccaaag 240
cagtttgcgt ttgtgaattt caaacatgaa gtgtctgttc cttatgcaat gaatctactt 300
aatggaatca aactttatgg aaggcctatc aaaattcaat ttagatcagg aagtagtcat 360
gccccacaag atgtcagttt gtcatatccc caacatcatg ttggaaattc aagccctacc 420
tccacatctc ctagcgcagg tacgaaagga ctatggataa catgacttca tcagcacaga 480
taattcagag atctttctct tctccagaaa atttcagag acaagcagtg atgaacagtg 540
ctttgagaca aatgtcatat ggtggaaaat ttggttcttc acctctggat caatcaggat 600
tttcaccatc agttcaatca cacagtcata gtttcaatca gtcttcaagc tcccagtggc 660
gccaaggtac accatcatca cagcgtaaag tcagaatgaa ttcttatccc tacctagcag 720
atagacatta tagccgggaa cagcgttaca ctgatcatgg gtctgaccat cattacagag 780
gaaagagaga tgatttcttc tatgaagaca ggaatcatga tgactggagc catgactatg 840
ataacagaag agacagtagt agagatggaa aatggcgctc atctcgacac taacacatgt 900
taaaaggaca ttgtttttat agggtcattt taggcccttt gactaagttg atatggaaat 960
atttgttga aaaactgtac agagcagctt tacaagttgt cacatttctt tataaatttt 1020
tttaaagcta cagtttaata caaaatgaat tgcggtttta ttacattaat aacctttcac 1080
ctcagggttt tatgaagagg aaagggtttt atgcmaaaga aagtgctaca attcctaatc 1140
atttagaca ctttaggagg gggtgaagtt gtatgataaa gcagatattt taattatttg 1200
ttatcttttt gtattgcaag aaatttcttg ctagtgaatc aagaaaacmt ccaggttgac 1260
agtctaaaat ggctmctggt attttagtta attcaaaaat gaaacttttc agtgattcac 1320
tttactaaca ttctatttgr gaagscwtat tggtaaagtt tggggataaa ggcattgctt 1380
aacttcttat ataatttagg tataaattct gtgacatgct cttgagcttt accctagttg 1440
aacatacatg tgtagattta cacatactgt ttcattctaa aatttagaaa ttgttcatta 1500
aatcccattt gaggtataag tcactcagga agttaaaata tctctacacg tatattttta 1560
cattaaaaat acagtgttag cataaatccc cttttcagga agaacaaaaa tgtcagtgca 1620
tagttagata aaatggtaaa atgttttact gaaagcatac tttttggaa aatagattca 1680
tgaagccttt aagtgctgct tctgtcagtc aaacgttaaa aactttaaca ttttcaaagt 1740
gcccagactg tgtacaaaga cacatgtaat ggagattgta caggttgttt ttttgtttga 1800
acctttgaaa gagtttaatc ttaacgtttt ctaattttaa aattttaaaa tcttgtttaa 1860
caaaagcttg tattaagata ctgttttcat ttcattacag aattgtttat aaaagttcat 1920
ttgttgaaaa ataaggatcc tttttaatac cacagcattt gtactgttcc tttttaatat 1980
actgaaaata taaaaggaag ggkgtgtgtt aaaaaraaaa aaaaaaaaaa aaaaaaaaaa 2040
aaaaa 2045

<210> 750

gaattgcaga gaaatgcatt ttcacagaaa tcaagatgtt atttttgtat actatatcac 1440
ttagacaact gtgtttcatt tgctgtaatc agtttttaaa agtcagatgg aaagagcaac 1500
tgaagtccta gaaaatagaa atgtaatttt aaactattcc aataaagctg gaggaggaag 1560
ggganannaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaagg 1619

<210> 747
<211> 492
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (54)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (476)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (491)
<223> n equals a,t,g, or c

<400> 747
aattcggcac sgcgcaggag gacggagccc taaccgcaac ccgcgccgcg ccgngccgat 60
ttgatttgta tccactgtca ccagcactgc tcacttagga ctttctggat ccggacccag 120
gcagcgcaca ctggactctt gaggaagaag gagactctaa ttttggattc cttggtggag 180
gaaaataaaa cactctggtc ttgccgccaa cgatgcaagt gtgactgctg gcgtcttcat 240
gagctccaga ggtcacagca cgctaccaag gactctcatg gcccctcgga tgatttccga 300
gggagacata ggaggcattg ctcaaatcac ctcctctcta ttcctgggca gaggcagtgt 360
ggcctccaat cggcacctyc tccaggctcg tgggcatcac ctgcattgtt aatgstacca 420
ttgagatccc taatttcaac tggccccaat ttgagtatgt taaagtgcct tggtgnacat 480
gccccattgg nt 492

<210> 748
<211> 603
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (598)
<223> n equals a,t,g, or c

<400> 748
cccgccgcca cccggcagta gttgcggagg tcagccccgc ctacttcctc tttccctcgg 60
agcgggcggc ggcgttggcg gcttgtgcag caatggccaa gatcaaggct cgagatcttc 120
gcgggaagaa gaaggaggag ctgctgaaac agctggacga cctgaaggtg gagctgtccc 180
agctgcgcgt cgccaaagtg acaggcggtg cggcctccaa gctctctaag atccgagtcg 240

ccccattgta ccaaaaagat aaaaaaatgg taaacactga tcaaggtatt ttgtattgtc 1680
aaggcatgca tattctaaag aattaaatgc taacttaaca gcactggctt tctggctggt 1740
caactatatg aaaccttgtt cattcctccg agtactgtaa tgttcacact tgtacaatct 1800
tccctgtcat gactttaagt tctacttttc attaaccatg gcctgatatt agttcttaga 1860
gcttcttgtg gcaaaaataa aatgatttaa ttctgaaaaa aaaaaaaaaa aaaaaaaaaa 1920
ctcgagacta gttctc 1936

<210> 746
<211> 1619
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1565)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1567)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1568)
<223> n equals a,t,g, or c

<400> 746
ggcggaggag agccgtgcgc acggcgtatg tggggccgtg tgcagacccg cgtgtggcgc 60
aggcaaggac cctcaaaata aacagcctct accttgcgag ccgtcttccc caggcctgcg 120
tccgagtctc cgccgctgcg ggcccgctcc gacgcggaag atctgactgc agccatgagc 180
agcaatgagt gcttcaagtg tggacgatct ggccactggg cccgggaatg tcctactggt 240
ggaggccgtg gtcgtggaat gagaagccgt ggcagaggtt tccagtttgt ttcctcgtct 300
cttccagata tttgttatcg ctgtggtgag tctggtcatc ttgccaagga ttgtgatctt 360
caggaggatg gcctgctata actgcggtag aggtggccac attgccaagg actgcaagga 420
gcccaagaga gagcgagagc aatgctgcta caactgtggc aaaccaggcc atctggctcg 480
tgactgcgac catgcagatg agcagaaatg ctattcttgt ggagaattcg gacacattca 540
aaaagactgc accaaagtga agtgctatag gtgtggtgaa actggtcatg tagccatcaa 600
ctgcagcaag acaagtgaag tcaactgtta ccgctgtggc gagtcagggc accttgcacg 660
ggaatgcaca attgaggcta cagcctaatt attttccttt gtcgcccctc ctttttctga 720
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caactcccag gccagtgagc tttacttgcc gtgtaaaagg aggaaagggg tggaaaaaaa 840
ccgactttct gcatttaact acaaaaaaag tttatgttta gtttggtaga ggtgttatgt 900
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gaagagttga gtcagaccag taagcccgtc ctgggttcct tgaacatgtt cccatgtagg 1020
aggtaaaacc aattctggaa gtgtctatga acttccataa ataactttaa ttttagtata 1080
atgatggtct tggattgtct gacctcagta gctattaaat aacatcaagt aacatctgta 1140
tcaggcccta catagaacat acagttgagt gggagtaaac aaaaagataa acatgcgtgt 1200
taatggctgt tcgagagaaa tcggaataaa agcctaaaca ggaacaactt catcacagtg 1260
ttgatgttgg acacatagat ggtgatggca aaggtttaga acacattatt ttcaaagact 1320
aaatctaaaa cccagagtaa acatcaatgc tcagagttag cataatttgg agctattcag 1380

tcttctttct ttgccagggt attttggggg ttttgcccca aaatataccc tgggcatagc 900
attactgcag tcttggatgt ctaccccaaa cttccacacc atccttcgac ccacagctgc 960
acctttattt atttattttg ctccagcctg ggggacagag tgagacttcg tctcggg 1017

<210> 744
<211> 361
<212> DNA
<213> Homo sapiens

<400> 744
ggtggccgct ggagtttgtg tggccgccgc cgcgggaacg cgagcccggt aatttttcaa 60
cggagaaagg cgaggctttc gggctctgca gagtgagagt tagcaagtgt ccggctccag 120
ccggcatgga ggatccacag agtaaagagc ctgccggcga ggccgtggct ctcgcgctgc 180
tggagtcgcc gcggccggag ggcggggagg agccgccgcg tcccagtccc gaggaaactc 240
aacagtgtaa atttgatggc caggagacaa aaggatccaa gttcattacc tccagtgcga 300
gtgacttcag tgacccggtt tacaaagaga ttgccattac gaatggctgt attaatagaa 360
t 361

<210> 745
<211> 1936
<212> DNA
<213> Homo sapiens

<400> 745
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taatcagaaa ctacataagg aatgttatat aggcttgtca gttcccattt ttcttgacaa 120
caataaatac cacttttaaa aatgacacat atttaaacac ttagaaaata aagttaacac 180
ttactgaagt gctagtacta aactgtgcta gtactaaaag aaaacaggtt ggaacataca 240
tatagcctag catttataac agaattgttg aacgysygya aatgattttt tttttttttt 300
gcaaaggaaa aaattgatac tggaaaagat tgttgtgcat agttattagt catttgtaac 360
cttgcttaag tatttcttag tccaacatag atattttctt tctcctgacc atgtatttta 420
aaatatagtc tatttcttga ctttgaactt aaagctttaa tcataawttc tcatgtatac 480
atcgttcttc tgatggtaag ctggatttga aggtagtggt ttcagtgttt cttaagttgg 540
tagctgaggg tatcaggcat cagttcatgc aataatacaa gaaaaaaaat cctttgcttg 600
ccaagaggta gagtgatgtg catttatctg ttttctgttc tgtaagtcta gaccttcaaa 660
ccatttgtaa actaacccct gggaaatttg aaattacctg ataacttaag actctgtgat 720
ctctggaatc accatatgtt tctttttgt gtagatatta ataacattac tctttgacta 780
tagtgtgcac tctgaaatgt actcagtgaa aatttgtttt gagtttcatt aatgctattt 840
caccagttag acataattac ttctaccgat gtgaatgata cggatgccgg cagagcttcc 900
agatctttca gactcaactg ctaggtcaat tagtttgtca taataaaact tggcagattc 960
tacaagtcta ttatgacaaa ccaggaacta attctataat ggaaaactat ccattctgaa 1020
taataggtat gtaattattt gctgctgctg ctgtgctctg taaattctga atatgacatt 1080
taaactctgt gcctactaaa ggtatcttct ggagttttg ggaggagaga aactggaaaa 1140
ttaaattgta tttttgccag aagactctta cttgcatgtg tctcagggtc ttcagttttt 1200
ctataagttt ccatatccaa agttcagaat tcatgtgaaa tacttctttg gggcaaaagt 1260
ccttcattcc tggtatttat tggattggaa atctgtagca agatgctgtt taaaattacc 1320
atattgtttt tttatcttat acttagctct ctggctattg aacttccttt tcttgtttga 1380
agttagcttc aaatttgctc ctatgctaaa ttacctgtaa atattctgga taggaactac 1440
ttgaaatagt aatttgttaa aagatatgac aaaatgaaaa tgcttaaact acagaaattt 1500
aaaaatgcca taacaatctt gcgagactaa ctttaaaata tactttaaat gattattatg 1560
atttggtgg taacgatccc ccacacacaa ccactatgaa gaaataatgc cgcatttttc 1620

<222> (30)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (460)
<223> n equals a,t,g, or c

<400> 742
ggagacctcc tgacctttgg ccctgaagcn accgaggaac cagcccctcg gagttctact 60
tcatgttcca acaagtacga gtcaagcctc aggactttgc tgccattacc atcccacggt 120
ctaggggaga agcccgggtt ggggctggtt tccggcctat gctgccctcc cagggggctc 180
cacagcggcc tctcagcacc ttctcccctg cccccaaggc cacactgatc ckaaactcca 240
taggcagcct cagcaagctc cggccccagc ccctcacctt ctcccctagt tggggtggac 300
caaagagcct gcctgttccc gccccacctg gggaaatggg gaccacgcct tctgctccac 360
cmcaacgcaa tcggaggaaa tctgttcacc gagtgttggc ggaactggat gatgagagtg 420
agcctcctga gaacccgcca ccggtcctta tggagcccan gaagaaactc cgtgtagaca 480
aagccccact gactcccact ggaaatcgac gtggccgtcc tcggaagtac ccagtgagcg 540
ctcccatggc tcccccctgca gttgggggcg gggagccctg tgcagctcct tgttgctgcc 600
tgccccagga agagacagtg gcctgggttc agtgtgatgg ctgtgacgtc tggttccatg 660
tggcctgtgk kggctgcagc atccaggctg ccagggaggc cgacttcyka tgcccagggt 720
gccgggctgg cattcagacc taaggtcccrc ygccaaggca ccatcggaca cacctgccca 780
tgagtagaca cagcagcgag caaataggtc tgataaatam ccccccttccc ttccctcccc 840
aagaggaatg actacaggga agaaggatgg attgatgtgg actcattcag gccttgagca 900
gaccctggtg gccaagacag aagaga 926

<210> 743
<211> 1017
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (599)
<223> n equals a,t,g, or c

<400> 743
aggggctgca gctgccaaac ccaataccct ctatttaacc cctactctgt tttacaagag 60
aaataaaaga agtatcagca gagctcaggt gctaacacct gttgagggct gacctacaaa 120
actctgccta caaaactctc ttagacaggt gaatatgcca ctagaagtta ggttgctggt 180
agacctgggg gtccctgcgg gagggtgatg gtttctttac caccccacag gagatttcag 240
tggcaaggca tgcctgcagt gggctttggg ccatgcatct tccaagtcca taggtcttca 300
cctgggtggc agtgagaaaa agtagaaagt aatgagcctc ctgtgtctct ggaaggttct 360
agggwtaggg tagagggaag aagagaacaa acaagcctgg cttgtgctga agtgtggtag 420
gcactaccct gtttgcgtga agagaaaaca aagcacctgt tagtagggag gctttagggg 480
gaagccccgt cttgggggca tttctgggca gattgtgaat tggaggaatc tctttaactg 540
aagtactctg gctggaccct gcccttgtgt gaccatgtct cctattgcac cagcatttng 600
aattccatgg ctcaagaggg ttctggtacc atttattcac agactgtatc ctcgagagag 660
ctgctatata tgggagtgta ccagccaact ccttttccag tgtctgtaag tcacctcatt 720
aaagtataat tagctgtctc ctctgggaga tcctacccca tcagacaagg gcagtgagcc 780
caagcagtgc cagaggccct cagaaaggga ttagggtaga tgattgcaac tgaaacacaa 840

acagctggga gaacagctga agcagctggt gcctgcaagc ggcctcacag tcatggatct 360
ggaagctgag ggcacgtgtt tgcggttcag ccctttgatg accgcagcag ttttaggaac 420
tcggggagag gatgtggatc agctcgtagc ctgcatagaa agcaaactgc cagtgctgtg 480
ctgtacgctc cagttgcgtg aagagttcaa gcaggaagtg gaagcaacag caggtctcct 540
atatgttgat gaccctaact ggtctggaat aggggttgtc aggtatgaac atgctaatga 600
tgataagagc agtttgaaat cagatcccga aggggaaaac atccatgctg gactcctgaa 660
gaagttaaat gaactggaat ctgacctaac ctttaaaata ggccctgagt ataagagcat 720
gaagagctgc ctttatgtcg gcatggcgag cgacaacgtc gatgctgctg agctcgtgga 780
gaccattgcg gccacagccc gggagataga ggagaactcg aggcttctgg aaaacatgac 840
agaagtggtt cggaaaggca ttcaggaagc tcaagtggag ctgcagaagg caagtgaaga 900
acggcttctg gaagaggggg tgttgcggca gatccctgta gtgggctccg tgctgaattg 960
gttttctccg gtccaggctt tacagaaggg aagaactttt aacttgacag caggctctct 1020
ggagtccaca gaacccatat atgtctacaa agcacaaggt gcaggagtca cgctgcctcc 1080
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cctgcgaggt tcagatgctt tgagtgagac cagctcagtc agtcacattg aagacttaga 1200
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aacacatttt attcacaaaa aacacttcga atttcaagtg tctaccagta gcacccttgc 1680
tctttctaaa cataagccta agtatatgag gttgcccgtg gcaacttntt tggtaaaaca 1740
gcttttcatt agcactctcc aggttctctg caacacttca cagaggcgag actggctgta 1800
tcctttgctg tcggtcttta gtacgatcaa gttgcaatat acagtgggac tgctagactt 1860
gaaggagagc agtgattgtg ggattgtaaa taagagcatc agaagccctc cccagctact 1920
gctcttcgtg gagacttagt aaggactgtg tctacttgag ctgtggcaag gctgctgtct 1980
gggactgtcc tctgccacaa ggccatttct cccattatat accgtttgta aagagaaact 2040
gtaaagtctc ctcctgacca tatattttta aatactggca aagcttttaa aattggcaca 2100
caagtacaga ctgtgctcat ttctgtttag tatctgaaaa cctgatagat gctaccctta 2160
agagcttgct cttccgtgtg ctacgtagca cccacctggt taaaatctga aaacaagtac 2220
ccctttgacc tgtctcccac tgaagcttct actgccctgg cagctcgcct gggcccaact 2280
cagaaacagg agccagcaga gcactctctc acgctgatcc agccgggcac cctgcttaag 2340
tcagtagaag ctcgctggca ctgcccgttc ctactttcc gaagtactgc gtcactttgt 2400
cgtaagtaat ggcccctgtg ccttcttaat ccagcagtca agcttttggg agacctgaaa 2460
atgggaaaat tcacactggg tttctggact gtagtattgg aagccttagt tatagtatat 2520
taagcctata attatactct gatttgatgg gattttgac atttacactt gtcaaaatgc 2580
agggggtttt ttttggtgca gatgattaaa cagtcttccc tatttggtgc aatgaagtat 2640
agcagataaa atgggggagg ggtaaattat caccttcaag aaaattacat gtttttatat 2700
atatttggaa ttgttaaatt ggttttgctg aaacatttca cccttgagat attatttgaa 2760
tgttggtttc aataaaggtt cttgaaattg ttaaaaaaaa aaaaaaaaaa aaaaaaaaaa 2820
aaaaaaaaa 2829

<210> 742
<211> 926
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature

cgcttccaga ggcgcatgca gcggctgata gagaagtaca accagccctt cgaggacacc 240
ccggtggtgc aaatggccac gctgacctac gagacgccac agggattgag aatttggggt 300
ggaagactaa taaaggaaag aaacaaagga gagatccagg actcctccat gaagcccgcg 360
gacaggacag atggctccgt gcaagctgca gcctggggtc ctgagcttcc ctcgcaccgc 420
acagtcctgg gagccgattc aaaaagcggt gaggtcgatg ccacgtcaga ccaggaagag 480
tcagttgctt gggccttagc acctgcagtg cctcaaagcc ctttgaaaaa tgaattaaga 540
aggaaatact tgacccaagt ggatatactg ctacaaggtg cagagtattt tgagtgtgca 600
ggtaacagag ctggaaggga tgtacgtgtg actccgctgc cttcactggc ctcacctgcc 660
gtgcctgccc ccggatactg cagtcgtatc tccggaaaga gtcctggtga cccagcgaaa 720
ccagcttcat ctcccagaga atgggatcct ttgcatcctt cctccacaga catggcctta 780
gtacctagaa atgacagcct ctccctacaa gagaccagta gcagcagctt cttaagcagc 840
cagccctttg aagatgatga catttgcaat gtgaccatca gtgacctgta cgcagggatg 900
ctgcactcca tgagccggct gttgagcaca aagccatcaa gcatcatctc caccaaaacg 960
ttsatcatgc aaaactggaa ctccaggagg aggcmcrgat ataagagcrg gatgaacaaa 1020
acatattgca aaggagccag acgttctcag aggagctcca aggagaactt catacсctgc 1080
tctgagcctg tgaaagggac aggggcatta agagattgca agaacgtatt agatgtttct 1140
tgccgtaaga caggtttaaa attggaaaaa gcttttcttg aagtcaacag accccaaatc 1200
cataagttag atccaagttg gaaggagcgc aaagtgacac cctcgaagta ttcttccttg 1260
atttacttcg actccagtgc aacatataat cttgatgagg aaaatagatt taggacatta 1320
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agtcccagga accagcctcg ccggatgtgc ctccccggact cctgggccat gaacatgtac 1500
agagggggtc ctgcgaagtc ctggtggcct tnaggcttaa aaacccgnaa gctgagttaa 1560
ctttcag 1567

<210> 741
<211> 2829
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (74)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1523)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1728)
<223> n equals a,t,g, or c

<400> 741
gacgctgggg gcagaccaca tgtcagcagt gggtgtcgct tagtaatata ttgtgggtca 60
ttgttatttt cttntttttg tttacttgta tttcctaaat ttttctacaa tgaacttgta 120
ttaataagaa aaaaccataa aatttactgt ttttaaaaag ctgctctaag taatcagaca 180
gtcaaaagag caggaatcag ctctccagga ggctctttgg tctggggccg aggggatgag 240
ggtgggtcct gaagacgtct gagtcccttg ttacaggagg gtgttcattg tgtcctcctc 300

aattcaaact ccactccctt ctccaaaagt taaaaggaaa gccaagtttg ccacgctccc 300
ctgttcctac tcaataaata cttcttctac tccgccaccg ggaaaacaga aaaaaaaaac 360
taatttcctt cccaatatta ggacttagaa aagctctagg tcccgcaayt tgaattttag 420
cctaggggaa tcaaaatagt aggagcatta ctcttgtttc ctttttcaaa atcccacacc 480
tcatccttcc tgcgacgcca tgtctaccaa catttgtagt ttcaaggaca ggtgcgtgtc 540
catcctgtgt tgcaaattct gtaaacaagt gctcagctct aggggaatga aggctgtttt 600
gctggctgat actgaaatag accttttctc tacagacatc cctcctacca acgcagtgga 660
cttcactgga agatgctatt tcaccaaaat ctgcaaatgt aaactgaagg acatcgcatg 720
tttaaaatgt gggaacattg tagkttatca tgtgattgtt ccatgtagtt cctgtcttct 780
ttcctgcaac aacrgacact tctggatgtt tcacagccag gcagtttatg atattaacag 840
actagactcc acaggtgtaa acgtcctact tyggggcaac ttgccagaga tagaagagag 900
tacagatgaa gatgtgttaa atatctcagc agaggagtgt attagataaa tggaattatg 960
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gacgggaaga ttctttcaca tatcactcag ttacctccca atctgggggа gtttttctta 1260
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ctgttaggtt tccatgggca ctggttctca taggttctat tggtgataac tgctttaaca 1440
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atcctcttga ttgctcagca tgatgttaga taaatgagtt tgtcagaaaa tatcagtata 1560
cgctgtttac caatgttatt tatttacatt cttctaaagc cattatggat attgtattat 1620
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gccattgtac attataaaga gctgttttgt tttgctttgc tttgctttgt tttgtttttt 1800
taaagctgca ttcagagcca caaaggaata ggaaagtagg gtagtgttgg attctggttt 1860
tatgtaactc taaaataaat gtatctcttt aatatctcag ttgtagggat tttgtcaata 1920
ccaaagcaga ctgagttgtg gttttgtaaa taaagttttt tctaaaaatg accattcttc 1980
ctttaatttt ttgttatgcc cacatattgt atgtaaaaat ataaataaat agtacttaaa 2040
gtatanaaaa aaaaaaaaaa aaaaaggtt 2069

<210> 740
<211> 1567
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1532)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1548)
<223> n equals a,t,g, or c

<400> 740
aaaaccgaga ggaagcagga agggcggagt ctcctatttg agtttgtggc gcgcgaggcc 60
ctgcagtccg ggttggcgct tgggtactgg ctgggtccga tgctgggtac gctgcgcgcc 120
atggagggcg aggacgtgga agacgaccag ctgctgcaga agctcagggc cagtcgccgc 180

tctcatctgg aaagattata taaattgcat tctccttgct tatgtgggta gaatgggara 2520
agaaggcaag acaaagtata cttaaattct atgcatattt ctgttatgct ttctgttttt 2580
tttagttgat tctgaaatga atatgcccta ttcttttgaa agaatggcct tttagttgta 2640
tagccaaaga catttagtat tttccggttc cttaaggtat tactgtacca ttttgtaaaa 2700
ggaatattat tattattatt tttaattatt tggtaaatat tttgtcatat gaccttctga 2760
agcagccaca acttagataa tgtcagaact aaggtgattt tttttttttt aattttgaaa 2820
gcccagccaa aatgaggtgt gaatttgtca tactgttaca ttgaaattgg taacaaaata 2880
tatcccctcc catttggact tttagggtaa atgaaaattt tattgtattt taaagtagtt 2940
tctaagtgtt agcaagactg actataattc cagtttctgt tttctatgga cagacctgat 3000
aaactggaga ccctaaagca ggaataccca aattatagtg tcaggatttt agctgtacca 3060
gaggccttta tgtgctacac ataatttgta taaaatttta tatgtgcaga ttgggtacat 3120
aaacagttct ccatttttct aagggaatgc aataaatgta gcatcgtgaa taaatataac 3180
ttttataatc cgtaaaaaaa aaaaaaaagt gnganggggg 3219

<210> 738
<211> 849
<212> DNA
<213> Homo sapiens

<400> 738
ggggacggaa gcggcccctg ccmraraagg gctggagccg ggccggggcg atgtggagcg 60
cggccgcgg cggggctgcc tggccggtgc tgttggggct gctgctggcg ctgttagtgc 120
cgggcggtgg tgccgccaag accggtgcgg agctcgtgac ctgcgggtcg gtgctgaagc 180
tgctcaatac gcaccaccgc gtgcggctgc actcgcacga catcaaatac ggatccggca 240
gcggccagca atcggtgacc ggcgtagagg cgtcggacga cgccaatagc tactggcgga 300
tccgcggcgg ctcggagggc gggtgcccgc gcgggtcccc ggtgcgctgc gggcaggcgg 360
tgaggctcac gcatgtgctt acgggcaaga acctgcacac gcaccacttc ccgtcgccgc 420
tgtccaacaa ccaggaggtg agtgcctttg gggaagacgg cgagggcgac gacctggacc 480
tatggacagt gcgctgctct ggacagcact gggagcgtga ggctgctgtg cgcttccagc 540
atgtgggcac ctctgtgttc ctgtcagtca cgggtgagca gtatggaagc ccccatccgtg 600
ggcagcatga ggtccacggc atgcccagtg ccaacacgca caatacgtgg aaggccatgg 660
aaggcatctt catcaagcct agtgtggagc cctctgcagg tcacgatgaa ctctgagtgt 720
gtggatggat gggtggatgg agggtggcag gtggggcgtc tgcagggcca ctcttggcag 780
agactttggg tttgtagggg tcctcaagtg cctttgtgat taaagaatgt tggtctatga 840
aaaaaagtc 849

<210> 739
<211> 2069
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (2046)
<223> n equals a,t,g, or c

<400> 739
gcgccgactg agcctctaaa gcgacttcag ctctgcccca ccaacaccac cgctccgggg 60
gaggggctta atgctgggga agggatgtct taaaagagga gaagctttaa attagacgat 120
cggagaaggc tgagggaatt gctatgaarg ggcgggagct gaagtgtaga ggactccttt 180
agacagcaga aagggaaagc cgttgagaag ttcccttcaa actccacctg cctcctctcc 240

<221> misc feature
<222> (3212)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (3215)
<223> n equals a,t,g, or c

<400> 737
catatggttt tgcgtccatt cctccttcgt cgaattaagg ctgatgttga aaagagtttg 60
cctccaaaga aggaagtaaa aatctatgtg ggcctcagca aaatgcaaag ggaatggtat 120
actcggatat taatgaagga tatagatata ctcaactcag caggcaagat ggacaaaatg 180
aggttattga acatcctaat gcagttgagw raatgttgta atcatccata tctctttgat 240
ggagcagaac ctggtccacc ttatacaaca gatatgcatc tagtaaccaa cagtggcaaa 300
atggtggttt tagacaagct gctccctaag ttaaaagaac aaggttcacg agtactaatc 360
ttcagtcaaa tgacaagggt attggacatt ttggaagatt attgcatgtg gagaaattat 420
gagtactgca ggttggatgg tcagacaccc catgatgaga gacaagactc catcaatgca 480
tacaatgaac caaacagcac aaagtttgtt ttcatgttaa gcacgcgtgc tggtggtctt 540
ggcatcaatc ttgcgactgc tgatgtagta attttgtatg attctgattg gaatccccaa 600
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ttccgcttta taactgataa cactgtagaa gaaagaatag tagaacgtgc tgagatgaaa 720
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attgggaaag atgaaatgct tcaaatgatt agacatggag caacacatgt gtttgcttca 840
aaggaaagtg agatcactga tgaagatatc gatggtattt tggaaagagg tgcaaagaag 900
actgcagaga tgaatgaaaa gctctccaag atgggcgaaa gttcacttag aaactttaca 960
atggatacag agtcaagtgt ttataacttc gaaggagaag actatagaga aaaacaaaag 1020
attgcattca cagagtggat tgaaccacct aaacgagaaa gaaaagccaa ctatgccgtt 1080
gatgcatatt tcagggaagc tcttcgtgtt agtgaaccta aagcacccaa ggctcctcga 1140
cctccaaaac aacccaatgt tcaggatttc cagttctttc ctccacgttt atttgaatta 1200
ctggaaaaag aaattctgtt ttacagaaaa actattgggt acaaggtacc tcgaaatcct 1260
gagctgccta acgcagcaca ggcacaaaaa gaagaacagc ttaaaattga tgaagctgaa 1320
tcccttaatg atgaagagtt agaggaaaaa gagaagcttc taacacaggg atttaccaat 1380
tggaataaga gagattttaa ccagtttatc aaagctaatg agaagtgggg tcgtgatgat 1440
attgaaaata tagcaagaga agtagaaggc aaaactccag aagaagtcat tgaatattca 1500
gctgtgtttt gggaaaggtg caacgagctc caggacatag agaagattat ggctcagatt 1560
gaaaggggag aggcgagaat tcaaagaaga ataagcatca agaaagcact tgacacaaag 1620
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aaaaactata ctgaagaaga agatcgtttt ctgatttgta tgcttcacaa acttggattt 1740
gacaaagaaa atgtttatga tgaattgcga cagtgtattc gcaactctcc tcagttcaga 1800
tttgactggt ttcttaagtc cagaactgca atggagctcc agaggagatg taatacctta 1860
attactttga ttgaaagaga aaacatggaa ctagaagaaa aggagaaggc agagaaaaag 1920
aaacgaggac caaagccttc aacacagaaa cgtaaaatgg atggcgcacc tgatggtcga 1980
ggaagaaaaa agaagctgaa actatgaata tgtttttgtt tcataatcac taactttaaa 2040
ccagtagttc tttaatttac gggtcttcat aagatgtact gtacaatgct caattgttat 2100
gtcatttaaa gacatcaggt tcatctgttt actgagctag aaacatagta tgtagtttca 2160
ctttttaaa tgcaacagct gtgctgaaat ttttttatca ttaacacttg aagtaataaa 2220
ataggcttca tttattacta agtgtttcat ttgatttatt tttctattgt agttccattt 2280
gtgaagattg tgactttttg tttattagct ataatttcta cacttgtaag gcttamaaac 2340
aagttaaaaa gaaaattgca aataacattt gtccctttca gtcttcacct agttgtgtaa 2400
ttattttaat tcactttgcc tttgcagaaa tttgggtatt ttctttgtag tgctattgag 2460

<221> misc feature
<222> (741)
<223> n equals a,t,g, or c

<400> 735
tttttttgt gcagtcgctg ggaaggaagg agacgcctaa accgcggcac tgcccggttt 60
gagcgtacca aacctgccca ccggctttgt agccccgatt ctctgtgttt tgctcccgtc 120
tccgacgaga gaggcggcga cggtggcgtc tgcgacggga gacagcgcgt cggagcgaga 180
gagcgctgcg cctgccgccg ccccaacagc ggaggcgccg ccgccatcgg tcgtcaccag 240
accggagccg cagcctcccg agcccggcca tccgtgcccc gctcccagat ctctatcctt 300
ttgggaccat gcgcggagga ggctttgggg accgggaccg ggatcgtgac cgtggaggat 360
ttggagcaag aggtggtggt ggccttcccc cgaagaaatt tggtaatcct ggggagcgtt 420
tgcgtaaaaa aaagtgggat ttgagtgagc tccccaagtt tgagaaaaat ttttatgtgg 480
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<213> Homo sapiens

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<223> n equals a,t,g, or c

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<211> 772
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<220>
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<222> (699)
<223> n equals a,t,g, or c

<220>

<211> 2004
<212> DNA
<213> Homo sapiens

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<210> 734
<211> 1128
<212> DNA
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<220>

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<211> 2017
<212> DNA
<213> Homo sapiens

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<210> 733

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<212> DNA
<213> Homo sapiens

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<212> DNA
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<211> 1755
<212> DNA
<213> Homo sapiens

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<211> 2004
<212> DNA
<213> Homo sapiens

<400> 727
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<210> 728
<211> 1470
<212> DNA
<213> Homo sapiens

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<210> 726
<211> 1508
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (9)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (309)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (360)
<223> n equals a,t,g, or c

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aggagctgga gggcagctca gagccagagg agtggtgccc gccaatgcct gagagaagtc 480
acctgacgga gcccagctcc agtggagggt gcctggtcac cccatcccga agggaaaccc 540
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gccgaatt 1508

<210> 727

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aaaaaaaaaa aa 1812

<210> 725
<211> 974
<212> DNA
<213> Homo sapiens

<400> 725
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tggtcctgga ggccaacggg aggaaggtcc gtgggggcgct gcccctggtg acgtgtgccc 240
ttcgtcccac gggcatctac ggtgaaggcc accagatcat gagggacttc taccgccagg 300
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aaaaaaaaaa aaccncgngg ggggcccc 1888

<210> 723
<211> 980
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (968)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (972)
<223> n equals a,t,g, or c

<400> 723
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tgcctggcta cttttgtgt ttttagcaga gacagggttt caccatgttg gtcagggtgg 120
tctcgaactc ctgacctcaa gtggtccgtc tggctcggcc tcccaaggtg ctgggattac 180
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caagagtacc aaagcggtgt gtgtatgtgt gtgtgtgtat gcatgcttgt ggattggaaa 480
aactttggag actgattact tttcattata tatgtgtcac agtgaaacag cttttatgtg 540
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<210> 724
<211> 1812
<212> DNA
<213> Homo sapiens

<400> 724
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tgtcataccc aggctatccc ccaacaggct acccaccttt ccctggatat cctcctgcag 120
gtcaggagtc atcttttccc ccttctggtc agtatcctta tcctagtggc tttcctccaa 180

tcagctccag ggagangcca cccacgtggc agccccacct cttgagagcc cccagtgccg 2040
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ggctgtggca atggaataaa acacgattaa aaacgttaar aaaaaaaaaa aaaaaaaaaa 2160
aaaaaaaaaa a 2171

<210> 722
<211> 1888
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (787)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1875)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1878)
<223> n equals a,t,g, or c

<400> 722
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<210> 721
<211> 2171
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (5)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1996)
<223> n equals a,t,g, or c

<400> 721
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gaaggccgcc aaggagctca gcaagcgttc tcctccaatt cccctggcaa aggtcgacgc 180
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<222> (2538)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2540)
<223> n equals a,t,g, or c

<400> 720
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<211> 2541
<212> DNA
<213> Homo sapiens

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<222> (1149)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1209)
<223> n equals a,t,g, or c

<220>
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<222> (2527)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<223> n equals a,t,g, or c

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<222> (2)
<223> n equals a,t,g, or c

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<221> misc feature
<222> (2200)
<223> n equals a,t,g, or c

<220>
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<222> (2211)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2347)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2384)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2393)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2401)
<223> n equals a,t,g, or c

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gaactacata ttgtccataa gtgcttcatc aggactcatc gccctcctgt ctactggctc 660
caaatagacc atgtcagctt caccccctgg ctttgtgtct atgggtggcc tgtggtatat 720
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<220>
<221> misc feature
<222> (1913)
<223> n equals a,t,g, or c

<400> 718
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gagaagcctg gggcttgccc tggctctctg tctcctccca tcgggaggaa cagagagcca 180
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<210> 719
<211> 2418
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1)

<222> (537)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (547)
<223> n equals a,t,g, or c

<400> 716
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gaaaagntgg aaaaaggaaa ggtccaagga atgt 574

<210> 717
<211> 847
<212> DNA
<213> Homo sapiens

<400> 717
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ggggggg 847

<210> 718
<211> 2086
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1863)
<223> n equals a,t,g, or c

<223> n equals a,t,g, or c

<400> 715
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<210> 716
<211> 574
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (507)
<223> n equals a,t,g, or c

<220>
<221> misc feature

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aac 4443

<210> 715
<211> 2099
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (2096)

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gcaactaact gtcaactgtt gatcaaaaaa gtcaaggcat tgtatgttgc ttctgtggtt 780
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tagggatcca gggtcg 1036

<210> 714
<211> 4443
<212> DNA
<213> Homo sapiens

<400> 714
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gaaaaaagat catttttata gctttgcatt cttaacatag catttaaaga gcggcatgaa 180
ttagaggaaa gacatggaac acacaggtag tcggtttgag atcatcggct taaaagtatc 240
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gttgataact aaagatgcaa ataacrtgac tatgccttct ggtcatccta sgactatttg 420
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gaagatctgg ttgaaaattg tatttctatg taaactcaac gatatgtttg gttttcctga 3720
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<210> 713
<211> 1036
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (25)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (54)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1017)
<223> n equals a,t,g, or c

<400> 713
ncgccctgtg ctggaattcg gcttngagcg gccgcccggg caggtacctc ggtntcaggt 60
tcatccatct ccagtggaat gttttcaata aaagatgaag aaaatgtgtg tgatctttaa 120
taacacatcc ctatagaaag tggataaaag atataccaaa actgtaatac agatatatac 180
aaatataggt gcctttttga ttactcttgt ttgtctagta tggtcttgga aagaaaacca 240
agcaagcaag ttgctgccta ttctatagta atattttatt acacatgatt gatattttg 300
tggtagggaa gtgggatgct cctcagatat taaaggtgtt agctgattgt attttatctc 360
taaagattta gaactttaga aaatgccgac ttcttccatc tatttctgaa aggttctttg 420

<221> misc feature
<222> (3758)
<223> n equals a,t,g, or c

<400> 712
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gggaagagtc tggaaaggaa acgcggcgra gtgggktggg agagggggcy tgtggttttg 180
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tctcattcca ccctccaccc actccggttc cgcgtgcacg cgragatagt ccartgggcc 300
cacagataac gaccatcaga gattaaagaa ggaaagtcag cgagcttgaa cacaggcgtc 360
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ccttctcacc gagaggggga gcccggcgtt cccggccggg agcgacccgg agtccccagc 480
cccgcgtccc agctgccgcc agcgccagtt ttggattcgg cggattagga agaggaggga 540
ggggggagag agcgcgaaga gggaggggac cgaagctgga gggtcccgag tccagcgccg 600
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gattcagtat ctactaccca tatttacttt accaaatata tttctcctca ctgcataagg 2700
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<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (14)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (41)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (77)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1110)
<223> n equals a,t,g, or c

<400> 711
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ctcatggcag cgcttgnaga aatgactggg ggagtccagc gaggtcgggg acgcagcggt 120
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cggtgagcag gaactggagg gaggcggtgg ggaaaccgtg gatccgtccg gctgagggtg 240
cgtggatcag actgggctga gcaggcaagt catcgtcggg tcacagcgag gcgacccagg 300
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cgggagggaa ctctgggcag gctggttttc ttggaatgtg tttacgatgt tgaatgggac 720
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ctgatataca taggagagaa actgatagaa gaattctgat ggcaactgta tgatagaagc 840
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cgtggaactg aacatttatt tggctgatcc tcatcatgaa ccgtgctttt agcaggaaga 960
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aag 1143

<210> 712
<211> 3779
<212> DNA
<213> Homo sapiens

<220>

<212> DNA
<213> Homo sapiens

<400> 709
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gtgtcacggc ccaccctgtc gccagcttca tcatgccctc atgcctcatg ggaaaggtgg 180
acgttcctca gtcagtggga ttgtggccac tgtgtttgga gcaacaggat tcctggggcg 240
atatgttgtc aaccaccttg gacgcatggg gtcacaggta atcataccct atcggtgtga 300
taaatatgac atcatgcacc ttcgtcccat gggtgacctg ggccagcttc tgtttctgga 360
atgggacgcg agagataaag attctatccg acgagtagta caacacagca atgtggtcat 420
caatcttatt ggacgagact gggaaaccaa aaactttgat tttgaggatg tttttgtgaa 480
gattccccaa gcaattgctc aactgtccaa ggaagctgga gttgaaaaat tcattcatgt 540
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tggaagagag gatagattcc ttaattcttt tgcaagtatg catcggtttg gtcctatacc 720
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caaggccatt gaggtgctgc ggcgtcatcg cacttaccgc tggctgtctg ctgaaattga 1140
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raaaaaaaa 1329

<210> 710
<211> 534
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (529)
<223> n equals a,t,g, or c

<400> 710
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tttacctgtt ctttgttttg tggtgtgtgt atggtgtgag tgtggtgttt tgtcttgagg 120
aagcatgggt caggcacaaa gtaagcccac cccaccagga actatgttga aaaatttcaa 180
gaaaggattt ragggagatt acggtgttac tatgacacca ggaaaactta ggactttgtg 240
tgaaatagac tggccagcat tagaggtggg ttggccatca gaaggaagcm trgacaggtc 300
ccttgtttca aaggtatggc acaaggtaac ctgtaagcca gggtgcccag accagttccy 360
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gaacagcagc ataagcagct ggcagaggca aggaaagacc agcaaagaga cagagaagaa 480
agagacagga aaagaggcaa agagagagaa gaagagagag aggaagagnc agag 534

<210> 711
<211> 1143

<400> 707
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taaggaaaga argataatta tctttaaagg ttgattccca ccctccctcc ccagttactt 120
aaggaactaa gtgagtacat ctccagttgc ccatgaaagc ataagtttgt tttcctcagc 180
tgaggcaagt ggtagagtat acaggataac gaagtaacat gtaaaaggca ggacgcacat 240
aaaggtgtac atggctattg tttcacctgg agaaaccaca tgattgggac ctgaaggttt 300
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gtgtttgttt tgctttttga caactgcttc tcccacgttc cttgcaattc tattctctca 480
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<210> 708
<211> 948
<212> DNA
<213> Homo sapiens

<400> 708
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aaagactgag aggaaaggag agagttgtat cctaccaatg attgcctccc ctctccccaca 120
tattaatgta ttacttaaag gaactgattt tttaaaattg gattgaatca tggaaacatt 180
ctttgagaat atggaaataa tttaatattt ttcccgtttc cagctcttca gctgtaacag 240
tgactcaaaa tcaattacat taagattagt ttttttgtty tggttttttt tttaagwact 300
ttgtgcttta aatataagkg aaaatactgk atttactttt gtgtgcttcc atctgaacta 360
aagtttccca tggygcttac cgagttaggt ctggctctgg gagaggagtg gacagcagct 420
ggttgagata catccccatc tggagacagg actgccactg acagaagatg tgagctgtgt 480
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acatcttagc accatcttcc tgcagctctt ccttacctaa ataaagaaac agcccaaggg 600
cagtatttct aaaagcactg taacagcttt tcattttctc cacatatact acaaattcta 660
taaagaaaga aattaattta aaaaaactaa gatgtttttc tcttctggct tcataaatgc 720
cttgctgtat aaattgaaat attgatactg aactgtcttt ttaatgatga cctaacttta 780
ttcaacccat cggaatttac tttttccctg aaataagatc ttttccactg gtctactacc 840
tgaccataaa catgtctgca tttgaattct ctaaacccta aatctgtgtc tatgaaaaat 900
acaaatgact attaaatatt attctcttta ctgttctctt tcaccgaa 948

<210> 709
<211> 1329

<221> misc feature
<222> (36)
<223> n equals a,t,g, or c

<400> 706
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agaggaggaa caagaagatg aggaagaaat cgatgttgtt tctgtggaaa agaggcaggc 120
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cagcccactg gtcctcaaga ggtgccacgt ctccacacat cagcacaact acgcagcgcc 240
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agtagtaggc gccgc 1155

<210> 707
<211> 1417
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1378)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1392)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1399)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1404)
<223> n equals a,t,g, or c

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tgatgtaagc cttggataga atgtngcccc tcagtgcccc acttaaattt cttggtaaac 720
ctttggtgta tacacttcat tgtgcttttt ggaatgactc taaaagccca taaactaatg 780
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gtcctgnatg taaatagggg gtttt 865

<210> 705
<211> 1383
<212> DNA
<213> Homo sapiens

<400> 705
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tccaaatatg gcagagwggg accagaagca tgtgtgcctg gatgattgat agcttcggaa 240
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cagacatcta tgtggtcatg tgccgaacag gaggaccagg ccccaagggc atctcatgca 480
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aaa 1383

<210> 706
<211> 1155
<212> DNA
<213> Homo sapiens

<220>

<222> (1044)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1061)
<223> n equals a,t,g, or c

<400> 703
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acgcttaagg cacgtgtgac ctgggtagtc agacaccact tgagcccctg cccacatctg 180
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gcgtccctgc acactgcgag gactgccttg cacaggccca ctccctacga cacgtgactc 360
gttttagagc tctgtcccag aggcgttcgt atgtgaccca cagatggcgt caatgtgaac 420
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cccaccatta tttaggttca cctgcaraac aaaaatctta ctccarcccc tcaatgccat 600
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<210> 704
<211> 865
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (685)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (831)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (847)
<223> n equals a,t,g, or c

<400> 704
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atttgatttt atatacacat atgtatacat attatatata aatatatatg tgtatacata 120

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ccaaaacctg tgccag                                                 556

<210> 702
<211> 1138
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1074)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1096)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1138)
<223> n equals a,t,g, or c

<400> 702
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cacttcctgg gctggggacc tcacagtttc ctgttcctgc cttgaggccg ggcaaacgca 180
gcaccaactg ctccccacag gtgcacagcg tggtgctgtc agagcgggac ctgcagcggg 240
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gcgaagaggc ccgcancggt tcgccctttc cccacaattg cgccctggaa tgggcgan   1138

<210> 703
<211> 1062
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
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cagttctcac agtgattact gtagacttct ctgcgaatat attcttggga atgattttac 660
agaccttttt gacattgtga ttacaaatgc attgaagcct ggtttcttct cccacttacc 720
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<210> 701
<211> 556
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (454)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (502)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (505)
<223> n equals a,t,g, or c

<400> 701
ttaaccccac agtctacttt tttttctgtt gcagacctta agacaatgta gtaatacgtc 60
ttttacccat cccccaaata acagtgtaca cagtgtgttt tttcccctta gtggagtgag 120
cagtatgtta gtgaggttag gtgagcatct agatttgttc cacagaaaag ggtgtttcca 180
gccagtatca gtgatgttgg tacttctcca acagtctaaa tctaagggtt ttaggagcct 240
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tcttttagca gaaggcacaa atgcctttta tttgctccgt ggtgaaaagc ttccagttct 360
caataggcac aggatgtcag tggccacagt tggtgtaagc ctgttcagag tcttctaatt 420
tgaaactgta gtggtgttta gtttataaag ctanaagaag aatctgtgga gggtctggaa 480

<211> 987
<212> DNA
<213> Homo sapiens

<400> 699
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agagtgggac agggacaagc atatctaaga ggctgaacat gaatccacag atcagaaacc 120
cgatgaaggc aatgtatcca ggcacattct acttccaatt taaaaaccta tgggaagcca 180
acgatcggaa cgaaacttgg ctgtgcttca ccgtggaagg tataaagcgc cgctcagttg 240
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tggccaggca cagcaacgtg aatctcacca tcttcaccgc ccgcctctac tacttccagt 480
atccatgtta ccaggagggg ctccgcagcc tgagtcagga aggggtcgct gtggagatca 540
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aatcttacta aactcawsct aggtggg 987

<210> 700
<211> 1675
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1616)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1635)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1659)
<223> n equals a,t,g, or c

<400> 700
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agggatcaac agtcacaatg atagaggaag gggcattcaa ggaaccatta atgagcaatg 180
tgcctcctct ctcaaaatca gggcaagcca tggcaccaag atgatgactc cagaggtgct 240
ggcagaggca tatggcaaga aagagtggaa gcacttcttg tcggacactg gaatggcttg 300
ccgctcagga aagtattact tttacgacaa ctactttgac ctgccaggag ctcttctgtg 360
tgccagggtg gtggactatt taacaaaact gaacaatggt caaaaaacat ttgattttg 420

<222> (488)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (489)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (534)
<223> n equals a,t,g, or c

<400> 697
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aaaaacttaa tgaaatgatt aatttttttt ttaattttac tgaaggatgt atnnatagat 120
ttaggaggga tatgagggtg actaaaaagt taaatttttc taatgtgaac ttttatttat 180
gttggcttgt atcttacaat ttgtaatttt aaagtcatgt taggccaatg raatgtgagc 240
gcctcaagaa tagctattaa gtatcatact aaatttggcg gacgtacaga tctgtgttac 300
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taaagtcatg tcaaatcaat ttagtagtaa gttcccttwt acmaatagtt atgtgtccac 480
acacgtgnng aatgttttat gggaactaat ggaagcgagc aaatcccaga aggntctctg 540

<210> 698
<211> 496
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (271)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (477)
<223> n equals a,t,g, or c

<400> 698
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cactggatcc aaagtttaga gaggttcccc ttccctccag cctccttcct ggcccaacag 180
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gtccatgcca ggaggtagtg gagctaccct ncaggttcca ttaagtcata ccagaaggct 300
gagtgtagaa atgaacatta agaggggttc catctgtagg gaaagggttc aagatgcaaa 360
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atgaagaatg gagagtgggg aaaccagcag agattttcag gaatgtttta gggggcnttt 480
tcatcgtttc aaagca 496

<210> 699

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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaggggg gggg 1844

<210> 696
<211> 605
<212> DNA
<213> Homo sapiens

<400> 696
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taggtgagtt atccaataca gcaaaggcca tcaaagagaa agccaatact ttcatggaga 180
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acttt 605

<210> 697
<211> 540
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (113)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (114)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (418)
<223> n equals a,t,g, or c

<400> 694
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gctgtgatgc agccccctcc aggcatgcca ctgccccctg cggacattgg ccccccaccc 360
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gggtaatta 489

<210> 695
<211> 1844
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<210> 694
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<210> 692
<211> 1382
<212> DNA
<213> Homo sapiens

<400> 692
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<210> 693
<211> 3098
<212> DNA
<213> Homo sapiens

<400> 693
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ttatatggct aaaatcatct tcagtaagaa ctctcttagg atatgaattt aagtgaaaat 180
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<222> (945)
<223> n equals a,t,g, or c

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<223> n equals a,t,g, or c

<220>
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<222> (959)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (969)
<223> n equals a,t,g, or c

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<210> 691
<211> 693
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (27)
<223> n equals a,t,g, or c

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<210> 689
<211> 969
<212> DNA
<213> Homo sapiens

<400> 689
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<210> 690
<211> 979
<212> DNA
<213> Homo sapiens

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<222> (376)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (943)
<223> n equals a,t,g, or c

<220>
<221> misc feature

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<210> 688
<211> 2751
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (528)
<223> n equals a,t,g, or c

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atgttgggaa agcagataac cctgaatgac atggaatctg tggatagtga atattacaac 180
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<210> 687
<211> 400
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (370)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (380)
<223> n equals a,t,g, or c

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<212> DNA
<213> Homo sapiens

<221> misc feature
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<212> DNA
<213> Homo sapiens

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<221> misc feature
<222> (57)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (476)
<223> n equals a,t,g, or c

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<221> misc feature
<222> (1905)
<223> n equals a,t,g, or c

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<212> DNA
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<220>

<210> 681
<211> 451
<212> DNA
<213> Homo sapiens

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<220>
<221> misc feature
<222> (419)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (428)
<223> n equals a,t,g, or c

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<211> 1298
<212> DNA
<213> Homo sapiens

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<222> (1294)
<223> n equals a,t,g, or c

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<211> 2309
<212> DNA
<213> Homo sapiens

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<221> misc feature
<222> (4)
<223> n equals a,t,g, or c

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<210> 679
<211> 952
<212> DNA
<213> Homo sapiens

<400> 679
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<210> 678
<211> 2667
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (2602)
<223> n equals a,t,g, or c

<400> 678
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<223> n equals a,t,g, or c

<400> 675
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tgtccaccgg cgcttcctcc agttgctgat gacccatggc gtgctagagg aatgggacgt 180
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<210> 676
<211> 920
<212> DNA
<213> Homo sapiens

<400> 676
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aaggcaagaa ctagcagttc gggaaagaca acaggaagta actagaaagt cggctcctag 420
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agctacccct gttggcaaag gaacggagaa cacttttcct tcaccgaaag ctataccaaa 540
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aaaaaaaaaa aaaaaaaaaa 920

<210> 677
<211> 1247
<212> DNA
<213> Homo sapiens

<400> 677

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<210> 674
<211> 1125
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1098)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1103)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1120)
<223> n equals a,t,g, or c

<400> 674
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ggcttccagc tcgcgggttc agggaagtgg tggagaccca agaagggaag acaactataa 180
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<210> 675
<211> 1077
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (523)

tcgag 2825

<210> 673
<211> 1430
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (435)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1046)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1409)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1413)
<223> n equals a,t,g, or c

<400> 673
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gcaacatcat cgagcagcgc acctgaagtg gatcttcgtc gggggcaagg gtggtgtggg 240
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<212> DNA
<213> Homo sapiens

<400> 672
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gaccagagtt cagagagccc 2900

<210> 671
<211> 987
<212> DNA
<213> Homo sapiens

<400> 671
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gagcaggact cagaggaggt tcgattaaaa ctggaagaga ccagagargt acagaacttg 180
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<210> 672
<211> 2825

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cccaagtctt ggagtcttgg ttcctgttcg cggtgtttat gggttatttc cctctccatc 1020
cctcattttt tttttttttt taaaaaaagc aaaaatgaga ataaacacaa gtagacatgt 1080
caaaaaaaaa aaaaaaa 1097

<210> 670
<211> 2900
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (2418)
<223> n equals a,t,g, or c

<400> 670
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tgatagaata ccttcagatt taattactgg catcttggtg tatagagccc acagaataat 420
cgagtcttgt caagaagcat tcatcttgcg cctctttcgc cagaaaaaca aacgtggttt 480
tattaaagct ttcacagaca atgctgttgc ctttgatact ggtttttgtc atgtggaaag 540
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taccatgctt gctatacaga ctgctatact ggacatttta aatgcatgtc taaaggaact 720
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tttaaaaata aaattaattt cctgttgawa aaaaaaaaaa aaaaaaaaaa araaaaggag 1920
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caaaagccct ttccccc 1997

<210> 668
<211> 586
<212> DNA
<213> Homo sapiens

<400> 668
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tgtactccgt actccgtact tcgtagtcgc agcggcgcgg tcttcggcag tctagtcatc 180
caccgccatc ctgggcccca cgtgttgcct gaccattcct gagcccaggt gggagccgtg 240
gctgaggtga cggtctcaaa gtggaagagc ttactgtcac agcaactcct ttgcaagatg 300
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cagccacctc tcaccagtgg cttcactctg tgtccctgac ccagcacatg gcacaagagt 480
gctgccatcc gtcagtgtty tacagcagca atcccagatg stggaasyta agggactgac 540
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<210> 669
<211> 1097
<212> DNA
<213> Homo sapiens

<400> 669
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cgtcaacaca gcgacctgac gggacctggc gcaascagcg gagggtgaaa gaaggatatg 120
tgccccagga ggaggtccca gtatatgaaa acaagtatgt gaagtttttc aagagtaaac 180
cagagttgcc cccagggcta agccctgagg ccactgctcc tgtcacccca tccaggcctg 240
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tactgtccca tagataaggc aggcattgaa gcacctgtcg tgatcctcta gggggggagaa 660
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caagccaaga tccagtcagt tcttgggagc ttgtctagag caccaagtaa tgaaatagcc 900
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gaaccttatc attaactggg gatgtgtagt ggawattttt ggggcctctg gggggttcca 1080
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ccccnaaatt ggtgtgaccg gaa 1223

<210> 667
<211> 1997
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1289)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1951)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1974)
<223> n equals a,t,g, or c

<400> 667
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gaggtactca aggtgcccaa aggcggggta gtgacctcgc gcgtgcgctg tgcccgcggc 120
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cggcggaggg atttgcggcc gggacccacc ccctgctcca gtcgctatcg gaggccgcgc 240
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gacgcccccg gagtggaagc cgaagcagga gttgttgttg ctgaggggct gccgcagccg 360
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ccagttcctg ccgcccaacc ttctggccct ctttgccccc cgtgacccta ttccatacct 480
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ccgt 3364

<210> 666
<211> 1223
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1122)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1123)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1133)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1137)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1205)
<223> n equals a,t,g, or c

<400> 666
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tgtgctgtct cctcttctct tccccaacca aggactgtgc cattactgcc cgtctcaact 180
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<222> (1470)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1881)
<223> n equals a,t,g, or c

<400> 665
tcgacccacg cgtccgactg agcgctggtt gcccatgcgg ccctagggct gggagcgcgg 60
cgccgctctc cgctgcgggg gaggccatgg cggaaccttc ccaggccccg accccggccc 120
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<210> 665
<211> 3364
<212> DNA
<213> Homo sapiens

<220>
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<222> (643)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (898)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1097)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<210> 663
<211> 740
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (25)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (546)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (618)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (639)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (652)
<223> n equals a,t,g, or c

<400> 663
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agatacacga aaaaacttcc agaacatctg ggagaatatt taatggaaaa tcgcttggtt 180
aaaacctgac acttttaaca gtgaacagcg ttctgagtgt ggacgagtag ccagtgaaga 240
taatgaattt cgaatgtgac tgactagcag cttcattttg aatgagggtc gctgtctgcc 300
cattgataaa ggccagattg tcttggaagt tccaaagttg caacgatttc tggctagtgc 360
cacgaggttt acttgactgt tgtgtgaaaa gctgataaga aaaccatcca gaaaaaagct 420
cttcgtttta caaacatgaa aataaaacat gtaattttgg attatgttcc tttttgttat 480
tacttttaaa taggtcctga aataacatgg ggagcattaa atggaaaatc cactaaccag 540
cttgtntcaa attactgtga gtgaatgttt ccgggtttgt gcaaggtaca tgtaagggtt 600
ttgggtcaat ggtaagantg gagagacaag aattagaant aatgttacta ancaaatcaa 660
gggatattaa ttttggagta acataatttg aaagcctgga tgctaagttg agaaatgggg 720
gaatgagatc agaaattagg 740

<210> 664
<211> 1670
<212> DNA
<213> Homo sapiens

<400> 664

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gcacggcctc gtgcccttcg ccttcgtgcg cttcgaggac ccccgagatg cagaggatgc 300
tatttatgga agaaatggtt atgattatgg ccagtgtcgg cttcgtgtgg agttccccag 360
gacttatgga ggtcggggtg ggtggccccg tggtgggagg aatgggcctc ctacaagaag 420
atctgatttc cgagttcttg tttcaggact tcctccgtca ggcagctggc aggacctgaa 480
ggatcacatg cgagaagctg ggatgtctg ttatgctgat gtgcagaagg atggagtggg 540
gatggtcgag tatctcagaa aagaagacat ggaatatgcc ctgcgtaaac tggatgacac 600
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gccccccaaa ggggnccaag ct 1162

<210> 661
<211> 1178
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (978)
<223> n equals a,t,g, or c

<400> 661
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cctgtcgctg caggtggagc agctgctcca ccaccggcgc tcgcgctacc aggacatcct 180
cgtcttccgc agtaagacct atggcaacgt gctggtgttg gacggtgtca tccagtgcac 240
ggagagagac gagttctcct accaggagat gatcgccaac ctgcctctct gcagccaccc 300
caacccgcga aaggtgctga tcatcggggg cggagatgga ggtgtcctgc gggaggtggt 360
gaagcacccc tccgtggagt ccgtggtcca gtgtgagatc gacgaggatg tcatccaagt 420
ctccaagaag ttcctgccag gcatggccat tggctactct agctcgaagc tgaccctaca 480
tgtgggtgac ggttttgagt tcatgaaaca gaatcaggat gccttcgacg tgatcatcac 540
tgactcctca gaccccatgg gccccgccga aagtctcttc aaggagtcct attaccagct 600
catgaagaca gccctcaagg aagatggtgt cctctgctgc cagggcgagt gccagtggct 660
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ctatgcctac tgcaccatcc ccacctaccc cagcggccag atcggcttca tgctgtgcag 780
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caccacgtcc tcactcacct gcacaagaat ccctgcatca ggttctcctt tgagggtacc 2520
cacccaggac agtcccctac cacttctgt 2549

<210> 661
<211> 1162
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1155)
<223> n equals a,t,g, or c

<400> 661
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gtgggctggg gcgggcccgc ggcgtcgggc ggtgcggatg tcgggctggg cggacgagcg 120

cgaacagcgc ccccactgcc ggccggtagc agccggaagt gccagaccgg aggtgcgtca 540
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cttccagcac tgtcccggtg agcgctgctg gctcggctaa tgaaactccc gaaataccgg 660
acaacgtggg agattggctt cggggcgtct accgctttgc cactgatagg aatgacttcc 720
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gtgatttttg ctcttgtcct gagaaataac agtgctgttt taaaaaacat ttgaaataaa 1140
taccgcacac aaaggcaaaa aaaaaaaaag ggsggccggt tttagaagat ccaaagctta 1200
cgtacccgtg catgcgaagn cattan 1226

<210> 659
<211> 464
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (25)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (37)
<223> n equals a,t,g, or c

<400> 659
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ccgggtcgac ccacgcgtcc gggcggactg gggaggcggc ggcctggctc ggcctggcct 120
ggcctgtcag ggcgcgggcg gcggcggctc cagcaccatg tccctgcagt acggggcgga 180
ggagacgccc ctcgccggca gttacggcgc ggccgattcg tttccaaagg acttcggcta 240
cggcgtggag gaggaggaag aggaggcggc ggcggcgggc ggaggggttg gggcaggggc 300
aggcggtggc tgtggtccgg ggggcgctga cagctccaag ccgaggattc tgctcatggg 360
gactccggcg caggscaaat tcctccatcc agaaagtggt gttytcataa agatgttcaa 420
ccaacgagac cctctttttt tgggaaatta ccaaacaaga tttt 464

<210> 660
<211> 2549
<212> DNA
<213> Homo sapiens

<400> 660
gcaaagaatg tgagagggac tccagtggtt tcaggatgac ctgcctaggg acagagaagc 60
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tgagcagctg aacgtgtatg agcacagaac acaccttcct ttctccgtaa ctttatgcat 180
tacactgtcc ctctgctagg agtgtcctgc ccggcctctt tctcaccttt acacctgtct 240
tcttatcctc acatctgttt tcacaccttc atccctgtct tcctcatgtt cacacttgtc 300
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tgaaaaactg atttgtgatt gaaagctgcc tttctattta cttgagtctt gtacatacat 1500
actttttttat gagctatgaa ataaaacatt ttaaactgaa aaaaaaaaa aaaaaaaaaa 1560
agtcgacgcc aggaatttag tagtagtagt aggcggc 1597

<210> 657
<211> 372
<212> DNA
<213> Homo sapiens

<400> 657
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cggctccccg ctcgggccta tcgttaggcg ctgggccccc aggcctctcc tttgcagagt 120
ctcgctgcct ccctcgacgc agagccttca agcgccgcag tccccgacgg cttccccgcg 180
ggccccactg tctccccaag acgcctggcg aggccgccgg ggctggagga ggcgctgagc 240
gcgctcgggc tgcagggaga acgcgatacg ccggggacat cttcgccgaa gtcatggkct 300
gggtcaagag aaaggcagaa gcacagtgtt ggagagtgaa gcgtccctgc cccaaaccca 360
agttttccgc gt 372

<210> 658
<211> 1226
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (378)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1220)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1226)
<223> n equals a,t,g, or c

<400> 658
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ggaggaaacg ggtctgtaaa gcgggagaac aaggctagcc tccccctaac aatcctagac 120
tgagacgcag tcaggcgcac gccgcaagag gcggcgaggt gacaagtttg gagtgcgccc 180
ccttcagtac tgcgcgttct aagactttg gcggagactt tcttggcaaa acccattccc 240
caaagctacg cttcccctgc tgagatagcc cctaccccca cctccacagg ctgggacagc 300
ccgtccccac catcctcctc ccaagccaat taaatgatca cagcacgcgt gacagttacc 360
ggctggagag ccaggtgngg accgggagca ggggaccgta gaaccgggcc gcgctcctcc 420
cctcctagag ttcgtggagg cgcagcagag ggccgtccct cttccggatg tcggactaag 480

ctgaaaaaag gtacacagtt attagaaata tatgctttgg aaattcaaat gtacacagca 660
cagaaaaata acaaaaaact taaagcactc tatgaacagt cacttcacat caagtctgcc 720
atccctcatc cactgattat gggagttatc agagaatgtg gtggtaaaat gcacttgagg 780
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cgtatatttc tgtacctgca gtgtagtaaa ggtttagacg aaaccccata attatagtgg 1920
catactgtca cttaggtttc aagcagcaaa ataaacagtg cagctcagaa aaaaaaaaaa 1980
aaaaaaaaaa aaaaaaa 1997

<210> 656
<211> 1597
<212> DNA
<213> Homo sapiens

<400> 656
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tcccgacgcg gacccgcgtg ccccaggcct cgcgctgccc ggccggctcc tcgtgtccca 120
ctcccggcgc acgccctccc gcgagtcccg ggcccctccc gcgcccctct tctcggcgcg 180
cgcgcagcat ggcgcccccg caggtcctcg cgttcgggct tctgcttgcc gcggcgacgg 240
cgacttttgc cgcagctcag gaagaatgtg tctgtgaaaa ctacaagctg gccgtaaact 300
gctttgtgaa taataatcgt caatgccagt gtacttcagt tggtgcacaa aatactgtca 360
tttgctcaaa gctggctgcc aaatgtttgg tgatgaaggc agaaatgaat ggctcaaaac 420
ttgggagaag agcaaaacct gaaggggccc tccagaacaa tgatgggctt tatgatcctg 480
actgcgatga gagcgggctc tttaaggcca agcagtgcaa cggcacctcc aygtgctggt 540
gtgtgaacac tgctggggtc agaagaacag acaaggacac tgaaataacc tgctctgagc 600
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<211> 614
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<223> n equals a,t,g, or c

<220>
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<222> (294)
<223> n equals a,t,g, or c

<220>
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<222> (2651)
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<211> 1425
<212> DNA
<213> Homo sapiens

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<210> 653

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<212> DNA
<213> Homo sapiens

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cggcccacat gagtcaatgg tatgcaaaaa gtctgtgttc tcccaaataa taatattaat 240
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<223> n equals a,t,g, or c

<400> 649
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<211> 3059
<212> DNA
<213> Homo sapiens

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<210> 648
<211> 606
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (572)
<223> n equals a,t,g, or c

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<210> 649
<211> 1696
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1047)

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<211> 832
<212> DNA
<213> Homo sapiens

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tgggtaaa gtggctgtaa cctaaaccaa ctagtccttg tgatttgttt ctgccctctg 660
tgtttcctgt tgtcaaatgc taagtgtgtg ttttgcagtc atgaactaaa gcacaaaaag 720
atgcatgaga cattgtagtc atatgtctgg tgtgacactt tggagcaaaa accttgcagt 780
ggtaaataaa aaatttccaa cagggaaaaa aaaaaaaaaa aaaaaaaaaa aa 832

<210> 647
<211> 1325
<212> DNA
<213> Homo sapiens

<400> 647
gcagcgggat gcaccatttc agttgtgttc ttggttcatt tcgtgtctcg gcgatgtttc 60
ctagagtctc gacgttccta cctcttcgcc ccctttcccg ccaccctttg tcctctggaa 120
gcccggagac atcagcggct gcgattatgc tactcactgt tcggcacgga acagtcaggt 180
accgcagttc agcgctgttg gcccggacaa aaaataacat ccaaagatat tttggcacta 240

<221> misc feature
<222> (21)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (24)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (41)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (124)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (128)
<223> n equals a,t,g, or c

<400> 645
ccnaccagtt tgcagtggtg nacnagaacc agtttgtaag natttatgac cagagaaaat 60
gatgagaatg agaacaatgg agtactcaag aagttctgtc ctcatcaccc tggtgaacag 120
tgantccnaa ascaaacatc acctgtcttg tgtaacarcc cacgacggca cagagctccc 180
tggcccagtt acaatgatga agacatttac ctcttcaact cctctcacag tgatggggcc 240
cagtatgtta agagatacaa gggccacaga aataatgcca cagtaaaagg cgtcaatttc 300
tatggcccta agagtgagtt tgtggtgagc ggtagtgact gtgggcacat cttcctctgg 360
gagaaatcct cctgccagat tattcagttc atggaggggg acaagggagg cgtggtaaac 420
tgtcttgagc cccaccctca cctgcctgtg ctggcaacca gtggcctaga ccatgatgtg 480
aagatctggg cacccacagc tgaagcttcc actgagctga cagggttaaa agatgtgatt 540
aagaagaaca agcgggagcg kgatgaagat agcttgcacc aaactgacct gtttgatagt 600
cacatgctgt ggttccttat gcatcacctg agacagagac gccatcaccg gcgctggcga 660
gaacctgggg ttggggccac agacgcggac tctgatgagt ctcccagctc ctcagacaca 720
tcggacgagg aggagggccc tgaccgggtg cagtgcatgc catcttgagg cctcatacct 780
aggtggggca ggctggggct gccaacctga tcctgcctgg gcaacccttt cctgtcccag 840
gccctacatt cagcagaaac gcactttgga ctttttgctt tagataaaag aaagacatcc 900
caggagaagg acaaaccaga ggagtgaacc aacaaagagt acctaggaat gggagttgag 960
ccctggaatc gggctccatg gagaggtgca taggactcgg cagaaatggc ctctccccaa 1020
agcctctttt tgagaggaga gggaagccta ttttgttaac tggtttggga tagggaatgg 1080
ggtttctttt tctttaatct cccttgtttc ttgggctggg ggargggtgg ggggaacaac 1140
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aggtttttga ccttttcttc ctttgttttt taaaagttta tgacagttgg ctcccccccc 1260
acccccagca accccatccc agaatcctat tttcctggga agtccttaaa gcccctaacc 1320
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tgcacttgat tacatatcct tcactctctt ctcttcatcc catcaccccc taaataggtc 1440
aggtgaggga ggctgggaag aggtgggagg aggggcagaa gtgaaggaag aataggaagg 1500
atattacctc ttctgttatt tttttaagaa acattgtttg gtggcagcaa tctccctgtc 1560

<222> (1731)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1793)
<223> n equals a,t,g, or c

<400> 644
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ccacgtcaga gacctgactg tggagatggc ggctcagaag ataaacgagg ggctggaaca 120
cctcgccaaa gcagagaaat acctgaaaac tggtttttta aaatggaagc cagattatga 180
cagtgccgct tctgaatatg gaaaagcagc tgttgctttt aaaaatgcca aacagtttga 240
gcaagcaaaa gatgcctgcc tgagggaagc tgttgcccat gaaaataata gggctctttt 300
tcatgctctt aaagcttatg agcaagctgg aatgatgttg aaggagatgc agaaactacc 360
agaggccctt cagctaattg agaaggccag catgatgtat ctagaaaacg gcaccccaga 420
cacagcagct atggctttgg agcgagctgg aaagcttata gaaaatgttg atccagagaa 480
ggctgtacag ttatatcaac agacagctaa tgtgtttgaa aatgaagaac gcttacgaca 540
ggcagttgaa ttactaggaa aagcctccag actactagta cgaggacgta ggtttgatga 600
ggcggcactc tctattcaga aagaaaaaaa tatttataag gaaattgaga attatccaac 660
ttgttataac aaaacaattg ctcaagtctt agttcatcta cacagaaatg actatgtagc 720
tgcagaaaga tgtgtccggg agagctatag catccctggg ttcaatggca gtgaagactg 780
tgctgccctn ggaacagctt cttgaaggtt atgaccagca agaccaagat caggtgtcag 840
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gtttggtggt tccaggaggg ggaatcaaga agaaatcacc tgcaacacca cagscaagcc 960
tgatggtgtr actgccacgg ctgctgatga agaggaagat gaatactcag gaggactatg 1020
ctagtatttt gcttgctgaa aagaaaaggg aaacaaaggt aaaatcctga catgccattt 1080
caaggacttt ggaatagatt agggatatcc gtacttcatt acagtcatga ttttggatcc 1140
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gaagcatatr tttttcyttc cataagagct tttctaagac accagcagga attaacagaa 1260
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tgataaatca ttttaaaatt tttttgtttt gaaaagtaaa tttatccccc atgatgttag 1500
atacatttaa attattaagt cttttcagag atgagatggg gacaggaagt tattttgagc 1560
cttacaatat tatttagccc aataaaagat gcattgaagc tcttatatat tatgagtttg 1620
aaaaattttg aaggtagcat attgaagtga tctataaata tcttcagtcc tctctgaagt 1680
gtgggtattt cttctatcta aaaaatacat acagtgactg tcttcaaatc nacttggttc 1740
ttgaccaaat aggagctaat gggtaatgaa tacctttttg tttgtgtgtt tgn 1793

<210> 645
<211> 2609
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (3)
<223> n equals a,t,g, or c

<220>

<222> (8)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1664)
<223> n equals a,t,g, or c

<400> 643
taaggganca aaagctggtg ctccaccgcg gtggcggccg ctctagaact agtggatccc 60
ccgggctgca ggaattcggc acgagtcttg gcggtggtgg carcagtgtt gaaactkggg 120
aacattgagt tcaagcccga atctcgagtg aatggtctag atgaaagcaa aatcaaagat 180
aaaaatgagt taaaagaaat ttgtgaattg accggcattg atcaatcagt tctagaacga 240
gcattcagtt tccgaacagt tgaggccaaa caggagaaag tttcaactac actgaatgtg 300
gctcaggctt attatgcccg tgatgctctg gctaaaaacc tctacagcag gttgttttca 360
tggttggtaa atcgaatcaa tgaaagcatt aaggcacaaa caaaagtgag aaagaaggtc 420
atgggtgttc tggacattta tggctttgag attttcgagg acaacagctt tgagcagttc 480
attattaatt attgtaacga aaagctgcaa caaatcttca ttgaacttac tcttaaagaa 540
gagcaggagg agtatatacg ggaggwtata gaatggactc acattgacta cttcaataat 600
gctatcattt gtgacctaat agaaaataac acaaatggaa tcctggccat gctggatgaa 660
gagtgcct[illegible] gacctggcac agtcactgat gagaccttct tagaaaagct gaaccaagta 720
tgtgccac[illegible] accagcattt tgaaagcagg atgagcaagt gctctcggtt cctcaatgac 780
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tggaaggcca gccatgccct catcaagtct ttgttccccg aagggaatcc cgccaagatc 960
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gcagcacaca tcttcaacga ggctctagtg tgtcatcaga tcaggtacct ggggcttttg 1140
gagaacgtcc gagtgcggag ggcaggctac gccttcaggc aggcctatga accttgccta 1200
gaaagataca aaatgctttg taaacaaaca tggcctcatt ggaaaggacc agccaggtct 1260
ggtgtggagg tcctatttaa tgaattagaa attcccgtgg aagaatactc ctttggtaga 1320
tcaaagatat tcatccgaaa cccaagaaca ttattcaaat tagaagacct gaggaagcaa 1380
cgcctggagg acttggccac tctcattcag aagatatatc gggggtggaa atgccgcaca 1440
cacttcctc[illegible] taatgaaaaa aagccaaatt gtgattgccg cctggtacag gagatatgcg 1500
caacaaa[illegible] ggtaccagca gacaaagagt tccgccttag taattcagtc ttatatccgg 1560
ggttggaacc ctcgaaaaat tctgcgggaa ctgaagcatc aaaagcgctg taaggaagca 1620
gtcacgacca ttgctgcata ttggcatggg acccargywc swangaagaa tcaggaaatt 1680
cttcagagcc aatgctggaa aagaaaatct at 1712

<210> 644
<211> 1793
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (79[illegible])
<223> n equals a,t,g, or c

<220>
<221> misc feature

<220>
<221> misc feature
<222> (2170)
<223> n equals a,t,g, or c

<400> 643
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gtccaagtga ttgtccaggc tcggcttggt gaaaagattt gcactcgttc atcatcttct 120
ccaacgggtt cagattggtt caacttagca atcaaagaca tcccagaggt tacacatgaa 180
gcaaagaagg cactggcagg acagctgcct gcagtcggga ggtccatgtg tgtggagatt 240
tcacttaaga cttctgaggg agattccatg gagctggaaa tatggtgtct tgaaatgaat 300
gaaaagtgtg ataaagaaat caaagtttcc tacacggtgt acaacagact gtcattgctg 360
ctgaagtccc ttcttgctat aactagggtg acaccagcct ataggntctc caggaaacaa 420
gggcatgaat atgtcatatt atacaggata tattttggag aagttcagct gagtggctta 480
ggagaaggct tccagacagt tcgtgttggg acagtgggca cccctgtggg caccatcact 540
ctttcttgtg cttacagaat taacttggca ttcatgtcta ccaggcaatt tgagaggacc 600
ccacctatca tggggattat tattgatcac tttgtggacc gtccctatcc cagctcctct 660
cccatgcacc cctgcaatta cagaactgct ggtgaggaca ctggagtaat atacccgtct 720
gtagaagact ctcaagaagt gtgtaccacc tctttttcca cctccccacc atcccagctg 780
atggttccag ggaaggaagg tggggtaccc nttgctccca accagcctgt ccatggtacc 840
caggctgacc aggagagact ggcaacctgc accccttctg acagaaccca ctgtgctgcc 900
acaccctcca gtagtgagga tactgaaacc gtatcaaaca gcagtgaggg acgggcctcc 960
cctcacgatg tcttggagac catctttgtc cgaaaagtgg gggcttttgt caacaaaccc 1020
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cctctccagg gcagcctgca ctcagatggc tccagcgggg gcagcagtgg caatacccat 1200
gatgactttg ttatgataga ctttaaacca gctttttcta aagatgacat tcttccgatg 1260
gacctgggga ccttctatcg ggagtttcag aacccacctc agctgagcag cctctccata 1320
gatattggag cacagtccat ggctgaagac ttggactcat taccagagaa gctggctgtg 1380
catgagaaga atgtccgcga gtttgatgcc tttgtggaaa ccctgcagta aaagtatcct 1440
tgagtccctt cagcaccccc tttttgtggc cccagggcat aagcagcctc ccatgcatca 1500
gctgctcccc cccctcatcc tgctctgagc caggtggaag ggaggctggc ttctcccatg 1560
gggacccaaa agtccctact cttggacctc ctggagactc cgtggcggca gtcaagccca 1620
gtgcccagtt ggagaagact cacgtgctgg ccttggagat gggaagaacc ttcgtacgaa 1680
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cccacccctg aaggtcggga gggtctgagc agccctggtg gctgcctgtg ctcaggtcct 2100
cagctccatg ggaaataaaa atggcaccct gaaaaaaaaa aaaaaaaaan cccnngggg 2160
gggccccggn 2170

<210> 644
<211> 1712
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature

ggctccgaga gcaggttctt cgtgagttcc tcgcagggcc ggtcagagct acacattgag 600
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tccgaccagg ccatcatcac gctccgcgtg cgcagccacc tggccgccct ctggcccttc 720
ctgggcatcg tggctgaggt gctggtgctg gtcaccatca tcttcatcta cgagaagcgc 780
cggaagcccg aggacgtcct ggatgatgac gacgccggct ctgcacccct gaagagcagc 840
gggcagcacc agaatgacaa aggcaagaac gtccgccaga ggaactcttc ctgaggcagg 900
tggcccgagg acgctccctg ctccrcgtct gcgccgccgc cggagtccac tcccagtgct 960
tgcaagattc caagttctca cctcttaaag aaaacccacc ccgtagattc ccatcataca 1020
cttccttctt ttttaaaaaa gttgggtttt ctccattcag gattctgttc cttaggwttt 1080
tttccttctg aagtgtttca cgagagcccg ggagctgctg ccctgcggcc ccgtctgtgg 1140
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gagtcagtgc caggtccttg ccctttgtgg aaagtcacag gtcacacgag gggccccgtg 1260
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cacagaggac tcacttgccc acaccgaggg cgaccccgtc acagcctcaa gtcactccca 1440
agccccctcc ttgtctgtgc atccgggggc agctctggag gggtttgct ggggaactgg 1500
cgccatcgcc gggactccag aaccgcagaa gcctccccag ctcacccctg gaggacggcc 1560
ggctctctat agcaccaggg ctcacgtggg aacccccctc ccacccaccg ccacaataaa 1620
gatcgccccc acctccaccc tcaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1680
aaaaaaaaaa aaaaamcggg gggncc 1706

<210> 642
<211> 2170
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (406)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (811)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2150)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2154)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2155)
<223> n equals a,t,g, or c

<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (910)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (919)
<223> n equals a,t,g, or c

<400> 640
gcccacgcgt ccgcccacgc gtccgcccac gcgtccggtt cctgcttcgg agtcggcggt 60
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gctcaggatg tcttcatcac attttgccag tcgacacagg aaggatataa gtactgaaat 180
gattagaact aaaattgctc ataggaaatc actgtctcag aaagaaaata gacataagga 240
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aattcttgtt gaattagatg agacatctca agggcttgtt ccagaaaaga ccaatgttaa 360
gccaaggcca atgaaaacta ttctaggtga tcaacgaaaa cagatgctcc aaaaatacaa 420
agaagaaaag caacttcaaa aattgaaaga gcagagagag aaagctaaac gaggaatatt 480
taaagtgggt cgktatagac ctgatatgcc ttgktttctt ttatcaaacc agaatgctgt 540
gaaagctgag ccaaaaaagg ctattccatc ttctgtmcgg attacaaggt caaaggccaa 600
agaccaaatg gagcagacta agattgataa cgagagtgat gttcgagcaa tccgacctgg 660
tccaagacaa acttctgaaa agaaagtgtc agacaaagag aaaaaagttk tgcagcctgt 720
aatgcccacg tcgttgagaa tgactcgatc agctactcaa gcagcaaagc aggttcccag 780
aacagtctca tctaccacag caagaaagcc agtcacaaga gctgctaatg aaaacggaac 840
cagaaggaaa ggtgccaagt aaaggaagac actgccaaaa atgtagaaac aaaacccgac 900
agggtatttn ttgtaaagnc 920

<210> 641
<211> 1706
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1704)
<223> n equals a,t,g, or c

<400> 641
gccgcgcctc cgccgctttt tatagcggcc gcgggcggcg gcggcagcgg ttggaggttg 60
taggaccggc gaggaatagg aatcatggcg gctgcgctgt tcgtgctgct gggattcgcg 120
ctgctgggca cccacggagc ctccggggct gccggcacag tcttcactac cgtagaagac 180
cttggctcca agatactcct cacctgctcc ttgaatgaca gcgccacaga ggtcacaggg 240
caccgctggc tgaagggggg cgtggtgctg aaggaggacg cgctgcccgg ccagaaaacg 300
gagttcaagg tggactccga cgaccagtgg ggagagtact cctgcgtctt cctccccgag 360
cccatgggca cggccaacat ccagctccac gggcctccca gagtgaaggc tgtgaagtcg 420
tcagaacaca tcaacgaggg ggagacggcc atgctggtct gcaagtcaga gtccgtgcca 480
cctgtcactg actgggcctg gtacaagatc actgactctg aggacaaggc cctcatgaac 540

<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (6)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (9)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (12)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (29)
<223> n equals a,t,g, or c

<400> 639
caagcngana cnaccctcac taaagggaanc aaaagctgga gctccaccgc ggtggcggcc 60
gctctagaac tagtggatcc cccgggctgc aggaattcgg cacgagggcg gcggaactag 120
ccaggcctct gccggggcag cgactggcgc tactggggcc agcrggggcg gtggccccat 180
caacccggcc tcgctgcctc ccggcgaccc gcagctcatc gctctcatcg tggagcagct 240
caagagccgg ggccttttg acagcttccg ccgggactgc ctggccgacg tggacaccaa 300
gccagcttac caaaacctga ggcagaaagt ggataatttt gtgtcaacac atctggacaa 360
gcaggaatgg aatcctacga tgaacaaaaa ccagttgcga aatggtctga ggcagagtgt 420
ggttcagtca gggatgttgg aagctggagt agacaggatt atttctcagg tggtggatcc 480
aaaacttaac cacatcttca ggccacaaat agaacgagca attcatgagt tcctggcggc 540
ccagaaaaaa gcagctgtgc cagcaccccc tccagagccc gaagccagga ccctccagct 600
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agaaatggat tcggttacat aagagtgcaa cttcagactg aagataggcc aaggtcgtca 720
ctgatctcaa gatttcaacc ttgaccatgg gcagtgacca gattgaaagg ggagcaagtt 780
cggcagtggg agagttgacc gtgtcacccc ctgcattgtg ctgccatttg gccagcctgt 840
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aaaatgacag taaagattag ctgggagtag tctttgacag tgcttatttg atactgtctc 1080
tcagagtttg caaaccagat tgtacaagtc attagcgtca gatagcttta aagttgtgac 1140
cttcttgtac atgaatcttc tagccagttt cctttccttt gtaacgaaac atgaaatcct 1200
agaatgtatg agaagttcag acattaggca taaggaaact cgtttgcagg ctctctgtcc 1260
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atttgtgttt ttttagaaaa gtgaatggtc aataaatggc ttatctttca taataaaatt 1380
atttgatact tttaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaa 1427

<210> 640
<211> 920

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aagggatcga ggccgttttt gaagcttacc aggaacacat agaagagcaa aatctggagc 1200
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<210> 639
<211> 1427

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<210> 638
<211> 3947
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (625)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (3738)
<223> n equals a,t,g, or c

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aaactggaca cgtcctctga gaagctagag tttttgcaac tttttggctt gaccacccaa 180
cagcagaagg aggaattggt ggcccagaag cggaggaagc ggcggaggat gctgcgagag 240
agaagccccgt cgccccccaac aattcagagc aagcggcaga cgccttcacc gagactggcg 300
ctgtctaccc gctacagccc tgatgagatg aacaacagtc ccaacttcga agaaaagaag 360
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gagtctgagc atgcttcact atatccgggg cgctgcaccc aaggacattc ctgtgccgct 780
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<211> 1584
<212> DNA
<213> Homo sapiens

<400> 636
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ccggaagatc cccacatcga tgaaagcaaa gcgaagcacc aagccatcat catgtccacg 120
tcgctacgag tcagcccatc catccatggc taccacttcg acacagcctc tcgtaagaaa 180
gccgtgggca acatctttga aaacacagac caagaatcac tagaaaggct cttcagaaac 240
tctggagaca agaaagcaga ggagagagcc aagatcattt ttgccataga tcaagatgtg 300
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tttctgaaac tgcggaaata ttccatcaaa gttcactgaa gagaagagga tggataagga 420
cgttatccaa gaatggacat tcaaagacca agtgagtttg tgagattcta acagatgcag 480
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gccctgtgct gttacagagg agaacaaaat gctttcagca aggatttgaa aactcttccg 660
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aaattcttac gtcaaatatc tgggaagttt ctctgtccca atcttaaaat ataaaatata 1560
gatatagaag ttcaaaaaaa aaaa 1584

<210> 637
<211> 1663
<212> DNA
<213> Homo sapiens

<400> 637
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gacgctgaag cggcccatgg agttcgaggc ggcgctgctg agccccggct ccccgaagcg 180
gcggcgctgc gcccctctgc ccggccccac tccgggcctc aggcccccgg acgccgagcc 240
gccgccgccg tttcagacgc agaccccacc gcagagtctg cagcagcccg ccccgcccgg 300
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tcgttatcag aggtggagac atttagaagt tgttcttaat cagagtgaag cttgtgcttc 420
ggaaagtcaa cctcactcct cagcactcac agcacctagc tctccaggtt cctcatggat 480
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aaaagactat gaagataaaa ttcgggagga gtatgagcaa atcctcaata ccaaactagc 600
agaacaatat gaatcttttg tgaaattcac acatgatcag attatgcgac ggtatgggac 660
aaggccaaca agctatgtgt catgaagctt tgtcacatat ctgggtacca ggtttgacct 720

ttctatattc attggatcat tgcctccttc ctgaaccttc cccattttac caaggaacat 1800
ggggagacta atccttttta gatagtagct ttttggatgg ctcaaaacat cacattttaa 1860
atttagtttt aaaaattttt taacttttgk gkcaaaaagg gggttgagga atttagcaag 1920
gatctt 1926

<210> 635
<211> 1346
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (19)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (21)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1342)
<223> n equals a,t,g, or c

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ggttagcagc tgctgcattt ccccggctgg ctgcggtcac tggtggcagt gctcaggcgc 120
ccgcgccctt gaccttcggc cccgcgagct ctaaccctac agcgcaggaa gatcggccgc 180
cgcggccagg ctctgatgct ggtgtctggt agaagaaggt tactcacagt tctgctgcag 240
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cacctggtgg ggcctcactt gggcctggag acagggaatg gtggaggggt tatcaacctc 360
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accctctcag tggcaagaag agccctggct gcccagttgc cagtcctacc acggtcggag 480
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gtggaccact gcaaagaaca gaacgtgccc gtgcccaagg agcccatcat cttcagcaag 600
tttgccagct ccatcgtggg gccctatgat gaggtggtcc tcccaccaca gagccaggag 660
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aaaaaaaaaa aaaaaggggg gncccc 1346

<210> 636

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cacaggaccc ctgctatgaa aggaataaaa cctacacaca aggttggagc tttgcaattc 1380
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tccggcattc 1750

<210> 634
<211> 1926
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (13)
<223> n equals a,t,g, or c

<400> 634
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gttctcctcg gccgcctctg gcgccggctg cacggccgtc ctggccatgc ctctgccttg 120
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gagtccagca ccaccctcca gaaccaaaag cccaaacaga agggaatgaa gattcagagg 300
gcaaagagca acgttgggaa atggtgatgg ataagaaaca ctttaagctg tggcggcgcc 360
caattacagg cacccacctt taccagtacc gagtttttgg aacctacaca gatgtgacac 420
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taacccattt tccttatcca atgtactcac gggattatgt ttatgttcgg cggtatagtg 600
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acaagtcatt tgatgagaat ggctttgact acttactaac atacagtgac aatcccccaaa 780
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<210> 633
<211> 1750
<212> DNA
<213> Homo sapiens

<220>
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<222> (809)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (821)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1676)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1689)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1712)
<223> n equals a,t,g, or c

<400> 633
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tgtggcctct actacaagct gcacaatgtt aacaggccac tgaccatgaa gaaggaaggg 120
atccagactc ggaaccggaa gatgtccaac aagtccaaga agagcaagaa aggggcggag 180
tgcttcgagg agctgtcaaa gtgcatgcag gagaagtcat ccccctcag tgcagctgcc 240
ctggctggac acatggcacc tgtgggccac ctcccgccct tcagccactc cggacacatc 300
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tactgtgaat gttccccacc gctgagaggc tgcctccgca cctgacygct gcccaggtgg 600
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cgctcccttg gctttgaggc cgaagctgct gtgactgtgt cccсttactg agcgcaagcc 1140
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<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1894)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1899)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1900)
<223> n equals a,t,g, or c

<400> 632
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cccgggctag cgnaaagtgg gggcagaacg aactacatct cccatcgtgc caggaggcgg 120
tcccgcccgt ttccccctgg gagttgtagt ctaacccccct cggatccaac agcaacctca 180
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ggattgcacg agccctcaga ttcatcgcta ccccgaggct aagcgccatg cctcatattg 360
acaacgatgt gaaactggac ttcaaggatg tccttttgag gcccaaacgc agtaccctta 420
agtctcgaag tgaggtggat ctcacaagat ccttttcatt tcggaactca aagcagacat 480
actctggggt tcccatcatt gctgccaata tggatactgt gggcaccttt gagatggcca 540
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ggcaagagtt tcctggccag aatcctgact gtcttgagca tctggctgcc agctcaggca 660
caggctctnc tatctttgag cagctggaac agatcctgga agctattccc caggtgaagt 720
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tacggaatng cttcccccag cacaccatca tggcagggaa tgtggtaaca ggagagatgg 840
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ctgaagtgtt tgtatatttg aaatacctca ataaagagag agctcattga ctgtaaaaaa 1860
aaaaaaaaaa aaaaaggggg gccgctttaa aggnccaann t 1901

tgctttcccc ttacttcgct acatttctat agttaagttg gttttacttg aatgattcat 960
gtttaggggg aaaatgaaaa tctcccttaa aatttgtttc aactcctcct gcaaataaaa 1020
taaatgaagt ggcagatgta aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1080
aaaaaaaaaa aaaaaaa 1097

<210> 631
<211> 1537
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (5)
<223> n equals a,t,g, or c

<400> 631
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ggccggggtg gctcggtttc ctggggctat gtaactgagc tcgtcgactt aggggtcctt 120
cttcgctgcc ctcgccgcgt gctagcaggg agtttccgct cgggagagag actgtcctca 180
cgcccgctgc gcctcctcga cggcagagca ggcttgctcg cccgtgggag cgtcccggcc 240
gagaagccct gagggggag gggaggccat tttgtcccga ccgactcccc ggaaccgggc 300
ggagcggctg ggagaggctg cggagccgcg gtcgccgccc tcggaggcac tggacgccgc 360
cactgtcggg gctccctcaa agctgttcgt aggtcgcccg cgccgtctcg agccttttc 420
ccacgcttcc cccgtcctcc ggcctgagaa cgcccgagtg aggagttggc cgtagtgaga 480
gggaccgatc cctcggggcc gccggcggcg agagcccgag ccgctcctcc caatggcgaa 540
gaagacgtac gaccttcttt tcaagctgct cctgatcggg gattccggag tggggaagac 600
ctgcgtcctt ttccgtttt cggatgatgc cttcaatact acctttattt ccaccatagg 660
aatagacttc aagatcaaaa cagttgaatt acaaggaaag aagatcaagc tacagatatg 720
ggatacagca ggccaggagc gatttcacac catcacaacc tcctactaca gaggcgcaat 780
gggtatcatg ctagtatatg acatcaccaa tggtaaaagt tttgaaaaca tcagcaaatg 840
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gtgtgatatg gacgacaaaa gagttgtacc taaaggaaaa ggagaacaga ttgcaaggga 960
gcatggtatt aggtttttg agactagtgc aaaagcaaat ataaacatcg aaaaggcgtt 1020
cctcacgtta gctgaagata tccttcgaaa gacccctgta aaagagccca acagtgaaaa 1080
tgtagatatc agcagtggag gaggcgtgac aggctggaag agcaaatgct gctgagcatt 1140
ctcctgttcc atcagttgcc atccactacc ccgttttctc ttcttgctgc aaaataaacc 1200
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acctattttt tttgttcttt catctgtgac tgcttgctga ctttatcata attttcttca 1320
aacaaaaaaa tgtatagaaa aatcatgtct gtgacttcat ttttaaatgt acttgctcag 1380
ctcaactgca tttcagttgt attatagtcc agttcttatc aacattaaaa cctatagcaa 1440
tcatttcaaa tctattctgc aaattgtata agaataaagt tagaattaac aatttaaaaa 1500
aaaaaaaaaa actcgagggg gggcccggt acccaac 1537

<210> 632
<211> 1901
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1566)

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taaaagtatt tgccagtggc catcagggct gagggcaaga atatattttt tataaggaat 540
tgggaatttt agtctttaa gcaaagttta cgaatgaaga aatgaaggat ggccacaagc 600
gtaaggcata tgtcacttgc ctctggacac tggttatttt atgtttcagt ccctaaaaaa 660
tgaaatgcaa aaaagtggtg ctaaatcgag tcagagatat tacaggagag ttttagagct 720
tattatttcc tgtggccagt gcttgtcctg gcagtaaggc tytcccctgt aacaagccag 780
agccctccaa ggtaccagac tcttcttact acacaggtac taacaggctg gcaggttaga 840
gttggtggag tctgaggaga gatattttct ctttgttgcc aacatcctgt ttaccaaaag 900
tgtcaccccca ccatcttcca taagctgtga aacaaaatca atgaggtcac taacttagaa 960
gggaaagaaa gttttctggg tctttgtttt cttgatttgg ggtaatttat acaagggcat 1020
acaagttgat tttaagatgt ggaactggga ggtagactag tttggataag aactttgaaa 1080
tgttcctttt gc ggatccccat ttctggtcat caagatgtgg atgtacattt cttaaaatta 1140
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aattatggga agcagaatta ctggctgatg gcccctgagg ctgtgtgtaa caaaatgaca 1260
ggacaatctt gcagtaacac tttccccttg aagagaaggg ggttttgatt gtgatatata 1320
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caacaggaaa ttcaagggag aaaaagtaag caacttgggc taggatgagc tgactccctt 1560
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tcaccaactt attacttgaa attataatat agcctgtccg tttgctgttt ccaggctgtg 1740
atatatttta ctactggttt gactttaaaa ataaataagg tttaattttc tccccaaaaa 1800
aaaaaaaaaa aaaaaaaaaa aaaaataaaa aaatn 1835

<210> 630
<211> 1097
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (13)
<223> n equals a,t,g, or c

<400> 630
ggcttggatt ttntttttcct attagaaacc aacagttttg ttctaatttc atttcatttg 60
gagctaagat gactaatttg atgattttcg atctcttttc ccctgtcctg attttaaaag 120
ccccctcctt tttttttttt ttttttttt cttttttag gcatatgtag taatattaga 180
aacatttaat ttgggaaact ttgattcttg aaagagaaaa caaaagcatg tgaataaact 240
ttgaagtgtt cacctcagtt tgggaccaaa ctgcttggat ctttgtaaaa accggttttg 300
tatgtcaagg aggagtttaa ggcctttccg accaccttgt gttccccttt tctgcgcasc 360
atgtatcacg tggagttgct ccttaccaca cctcacgtgc ccctgagccc tatttcctga 420
tttcttctgg gctggacttc cccgttctcc accagcagct ccagtatccc aaactttcta 480
gtcctgctca tcctcccagc aacggggtgg aaactggagg gcagtgtctg gtctgttttc 540
taagaaactt atgaattcta ttatctttac aaatatgaga aaatttttc aatattttt 600
attaatcttt ttataaaatg aaaagaaact cctatgatcg attaaggaag gtggttatgg 660
ctgggtggtt cagggttttt tttgggtttc ttttttttt ctttgtcttt ttaaccttaa 720
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ttgtgcttgc cttctgggga ggcggtcctg agcaggtgaa tcataaggca tttatgcata 840
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gggtggaatg gctgcaaata aaggataatg atttctccta tcgacccaac atgatttgta 540
actttctaca tgaaaatgaa gacgaagaag tggtagcttc agccccagat aaatctttgg 600
aattggaaga ggaagagatt caaatgaacg acagttcaaa cctgagttgt gaacaggaga 660
aaccaatgca cttggaaata gaagattctg gtcctcttat tgatatacct tctgagacag 720
aaggttctgt ttttatggaa actcaaatgc tgccttagaa atcactccta gatgaaatgt 780
ttctcataat aacttgtcaa gaacttttta gagttgttac ataaaaataa ttgctgtgta 840
aaaaaaaaaa aaaaaaaaaa aanaaaaaaa t 871

<210> 628
<211> 779
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (23)
<223> n equals a,t,g, or c

<400> 628
ggcctggcag gaattcgggc agnggcccgg ggcargatgg cagcggcgct gcgcgtgcgt 60
tgttgagtgt tcgggacgcc ggcctgcagg cgccatggtc ttcctcaccg cgcagctctg 120
gctgcggaat cgcgtcaccg accgctactt tcggatccag gaggtgctga agcacgccag 180
gcacttccgg ggaaggaaaa atcgctgcta caggttggcg gtcagaaccg tgattcgagc 240
ctttgtgaaa tgcaccaaag cccgatacct gaagaaaaag aacatgagga ccctctggat 300
taatcgaatt acagctgcta gccaggaaca tggactgaag tatccagcgc tcattgggaa 360
tttagttaag tgccaggtgg agctcaacag gaaagtccta gcggatctgg ccatctacga 420
gccaaagact ttcaaatctt tggctgcctt ggccagtagg aggcgacacg aaggatttgc 480
tgctgccttg gggggatgga aggaacctga aggcattttt tccagagtgg tgcagtacca 540
ctgaggactc ttgctgtatt gattaggaaa agagacagag taatttgcag tttgtttgat 600
ttatactttt gtttatctac aacccaataa cagacatgag ggatggccct gtctctctgg 660
gacagagctt cacacatgat gtccatgttt tgtgtgaatg aaactcaaac actcttcaaa 720
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaa 779

<210> 629
<211> 1835
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1835)
<223> n equals a,t,g, or c

<400> 629
gcgggcccgt acgccgattc catatgggcg ccggcgcgga gcgccgcggg gcagcgcggg 60
gtcgccatgg ctgagctgca gcagctccgg gtgcaggagg cggtggagtc catggtgaag 120
agtctggaaa gagagaacat ccggaagatg caggtctca tgttccggtg cagcgccagc 180
tgttgtgagg acagccaggc ctccatgaag caggtgcacc agtgcatcga gcgctgccat 240
gtgcctctgg ctcaagccca ggctttggtc accagtgagc tggagaagtt ccaggaccgc 300
ctggcccggt gcaccatgca ttgcaaygac aaagccaaag attcaataga tgctgggagt 360
aaggagcttc aggtgaagca gcagctggac agttgtgtga ccaagtgtgt ggatgaccac 420

taacccagag cttgcctgca cgctggctaa aacggctttt gatgaggcca ttgctgaact 780
tgatacacag aatgaagact catacaaaga cagcaccctc atcatgcagt tgcttagaga 840
caacctaata ctttggacat cagacagtgc aggagaagaa tgtgatgcgg cagaaggggc 900
tgaaaactaa atccatacag ggtgtcatcc ttctttcctt caagaaacct ttttacacat 960
ctccattcct tattccactt ggatttccta tagcaaagaa acccattcat gtgtatggaa 1020
tcaactgttt atagtctttt cacactgcag ctttgggaaa acttcattcc ttgatttgtg 1080
tttgtcttgg ccttcctggt gtgcagtact gctgtagaaa agtattaata gcttcatttc 1140
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aagtaatctg aaccagttct gcaagtgact gtgttttgta ttactgtgaa aataagaaaa 1260
tgtagttaat tacaatttaa agagtattcc acataacttc ttaatttcta cattccctcc 1320
cttactcttc ggggtttcc tttcagtaag caacttttcc atgctcttaa tgtattcctt 1380
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agtacttttc catgcagatt tgtgcacatg tgagagggtg tccagtttgt ctagtgattg 1800
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gccttgtgaa aatgttatgc cctatgtaac agcagagtaa cataaaataa aagtacattt 1920
tataaaccat ttactatggc tttgtaacaa ttgcataccc atattttaag ggacaggtga 1980
atttactact ttctaaagtt tattgatact tccttttat gtaaaatgta gtagtgatac 2040
ctatatttcc acattgtgca ttgtgacaca cttgtctagg gatgcctgga agtgtataaa 2100
attggactcc atttcttaga gtgttttact atagatcagt ctcatgggcc atctcttcct 2160
cagatgtaaa tgatatctgg ttaagtgtta tatggaataa agtggacatt ttaaaactar 2220
maaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaanaaa ta 2272

<210> 627
<211> 871
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (12)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (863)
<223> n equals a,t,g, or c

<400> 627
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gatggcggct ccgggcgggc gtggccagtg actagaaggc gaggcgccgc gggaccatgg 120
cggcggcggc ggacgagcgg agtccagagg acggagaaga cgaggaagag gaggagcagt 180
tggttctggt ggaattatca ggaattattg attcaractt cctctcaaaa tgtgaaaata 240
aatgcaaggt tttgggcatt gacactgaga ggcccattct gcaagtggac agctgtgtct 300
ttgctggggca gtatgaagac actctaggga cctgtgttat atttgaagaa aatgttgaac 360
atgctgatac agaaggcaat aataaaacag tgctaaaata taaatgccat acaatgaaga 420
agctcagcat gacaagaact ctcctgacag agaagaagga aggagaagaa aacataggtg 480

tatttgttg cgggttttca gcaaatccag ggctggtctg gaggcgcgaa aacttaaggc 120
atacagaacg atggagtata tggcagaatc caccgaccgc agccctggac acatcttgtg 180
ctgtgagtgt ggtgttccga taagtccaaa tcctgccaat atttgtgtgg cctgtttgcg 240
aagtaaagtg gacatcagcc aaggtattcc gaaacaagtc tcgatttcgt tctgcaaaca 300
atgtcaaacg tattttcaac caccaggaac ttggatacag tgtgctttag aatccaggga 360
acttcttgct ttgtgcttga aaaaaatcaa agcccctctg agtaaggtac ggcttgtaga 420
tgcaggcttt gtttggactg agcctcattc taagagactt aaagktaaac tgactattca 480
gaaagagctg atgaatggtg ctatccttca acaagtgttt gtggtggatt atgktgkccc 540
caaatggggg gagatggcat anaganaact aaggattctg gaaaggttgg attaaggggn 600
g 601

<210> 625
<211> 593
<212> DNA
<213> Homo sapiens

<400> 625
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actaacaaaa gatggctacg agggtaacat gttcggaggc ctcagcgggg caacagtcat 120
tgactccctc gataccctct acctcatgga gctgaaggag gagttccagg aggccaaggc 180
ctgggtggc[illegible] gagagcttcc acctgaacgt gagcggagaa gcatccttgt ttgaggtgaa 240
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aataaaggcc atcaggctgg gagagaagct cctgccggcg ttcaacaccc ccacgggaat 360
cccaaagggc gtggtgagct tcaaaagtgg gaactggggc tgggccacag ccggcagcag 420
cagcatcttg gcggagtttg gatccctgca cttggaattc ttacacctca ctgaactctc 480
tggcaaccag gtcttcgctg aaaaggtcag gaacatccgc aaggtcctca ggaagwtcga 540
aaagcccttt ggcctytact ccaactkagm catggtgttg caaacagatc ccc 593

<210> 626
<211> 2272
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (2267)
<223> n equals a,t,g, or c

<400> 626
gcggcacgag gctgacacgg gagggtcctc agctaaagcc aaaagcagat caaagtggtg 60
ggactcgcgt cgcggccgcg gagacgtgaa gctctcgagg ctcctcccgc tgcgggtcgg 120
cgctcgccct cgctctcctc gccctccgcc ccggccccgg ccccgcgccc gccatggaga 180
agactgagct gatccagaag gccaagctgg ccgagcaggc cgagcgctac gacgacatgg 240
ccacctgcat gaaggcagtg accgagcagg gcgccgagct gtccaacgag gagcgcaacc 300
tgctctcccgt ggcctacaag aacgtggtcg ggggccgcag tccgcctgga gggtcatctc 360
tagcatcgac cagaagaccg acacctccga caagaagttg cagctgatta aggactatcg 420
ggagaaagtg gagtccgagc tgagatccat ctgcaccacg gtgctggaat tgttggataa 480
atatttaata gccaatgcaa ctaatccaga gagtaaggtc ttctatctga aaatgaaggg 540
tgattacttc cggtaccttg ctgaagttgc gtgtggtgat gatcgaaaac aaacgataga 600
taattcccaa ggagcttacc aagaggcatt tgatataagc aagaaagaga tgcaacccac 660
acacccaatc cgcctggggc ttgctcttaa cttttctgta ttttactatg agattcttaa 720

gtcaatgata tcgtcttggc catcctggaa ctgctaaagt atcaccagag ggtgctgtac 600
attgacattg atattcacca tggtgacggc gtggaagagg ccttctacac cacggaccgg 660
gtcatgactg tgtcctttca taagtatgga gagtacttcc caggaactgg ggacctacgg 720
gatatcgggg ctggcaaagg caagtattat gctgttaact acccgctccg agacgggatt 780
gatgacgagt cctatgaggc cattttcaag ccggtcatgt ccaaagtaat ggagatgttc 840
cagcctagtg cggtggtctt acagtgtggc tcagactccc tatctgggga tcggttaggt 900
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cgaattgcct gtgaggaaga gttctccgat tctgaagagg agggagaggg gggccgcaag 1380
aactcttcca acttcaaaaa agccaagaga gtcaaaacag aggatgaaaa agagaaagac 1440
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ctgagtccct cacgtttctt ccccaacccc tcagatttta tattttctat ttctctgtgt 1620
atttatataa aaatttatta aatataaata tccccaggga cagaaaccaa ggccccgagc 1680
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aagtaacatc agccattttt agattggttc tgttttcgta ccttcccact ggcctcaagt 1980
gagccaagaa acactgcctg ccctctgtct gtcttctcct aattctgcag gtggaggttg 2040
ctagtctagt ttcctttttg agatactatt ttcattttg tgagcctctt tgtaataaaa 2100
tggtacattt ctataaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 2160
aaa 2163

<210> 624
<211> 601
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (562)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (566)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (600)
<223> n equals a,t,g, or c

<400> 624
ggcgagatct tctctgtggc ggagacagcc aggttggcag ctgacgggac agccggggtc 60

<213> Homo sapiens

<220>
<221> misc feature
<222> (598)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (645)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (649)
<223> n equals a,t,g, or c

<400> 622
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gaaggaatcc accttcttac gctatggcag gtaagaaagt actcattgtc tatgcacacc 360
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acaaagatat cactggtact ctttctaatc ctgaggtttt caattatgga gtggaaaccc 540
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ttcttgaaag 670

<210> 623
<211> 2163
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (29)
<223> n equals a,t,g, or c

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tactactacg acggggatgt tggaaattac tattatggac aaggccaccc aatgaagcct 180
caccgaatcc gcatgactca taatttgctg ctcaactatg gtctctaccg aaaaatggaa 240
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agaatttttga gtgttgtatt tggcaagttc tgagatttgc cttctgtctt atgccaaaca 480
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<210> 621
<211> 1026
<212> DNA
<213> Homo sapiens

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<210> 622
<211> 670
<212> DNA

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<210> 619
<211> 551
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (6)
<223> n equals a,t,g, or c

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aaagcaaaaa a 551

<210> 620
<211> 1735
<212> DNA
<213> Homo sapiens

<400> 620
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<210> 618
<211> 2529
<212> DNA
<213> Homo sapiens

<400> 618
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<210> 617
<211> 3147
<212> DNA
<213> Homo sapiens

<400> 617

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<221> misc feature
<222> (10)
<223> n equals a,t,g, or c

<400> 615
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<210> 616
<211> 2174
<212> DNA
<213> Homo sapiens

<400> 616
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<210> 614
<211> 1433
<212> DNA
<213> Homo sapiens

<400> 614
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gttcgcggga gtccgccgga agactacagg cttggacagg tcgccagtag cttatttcgc 180
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<210> 615
<211> 506
<212> DNA
<213> Homo sapiens

<220>

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gaacgctttg gataaacaag aagaattgac acctcttgga gtccacttgg cacgattacc 2160
cgttgagcca catattggaa aaatgattct ttttggagca ctgttctgct gcttagaccc 2220
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aaaaaaaaaa aaaaaaaat 3619

<210> 613
<211> 1427
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (297)
<223> n equals a,t,g, or c

<400> 613
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gctcggggaa ttggccccaa gtcacgggct ggtcagcgtg catggaagaa ttgcctatgt 120
gtctcagcag ccctgggtgt tctcgggaac tctgaggagt aatattttat ttggraagaa 180
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gctgttggag gatggtgatc tgactgtgat aggagatcgg ggaaccacgc tgagtgnagg 300
scagaaagca cgggtaaacc ttgcaagagc agtgtatcaa gatgctgaca tctatctcct 360
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agctgcaagt cagattctga tattgaaaga tggtaaaatg gtgcagaagg ggacttacac 540
tgagttccta aaatctggta tagattttgg ctccctttta aagaaggata atgaggaaag 600
tgaacaacct ccagttccag gaactcccac actaaggaat cgtaccttct cagagtcttc 660

tncccccnna aggggg 2176

<210> 612
<211> 3619
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (12)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (22)
<223> n equals a,t,g, or c

<400> 612
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aacaaacttg acatccagga aaagaagttg ataaatcaag aaaaaaaaat gtttagaatc 540
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cagagaaaag gtcgagctgg aagagttcaa cctggtcatt gctatcatct gtataatggt 1920
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<221> misc feature
<222> (2162)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2168)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2169)
<223> n equals a,t,g, or c

<400> 611
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ctgggacata attccaactg tgcacttgtg aacctagaaa acaagttatc tgttcccaag 180
tatgatggca tgacaggcag acaataatag ttacacacgt tcctgttcaa aaagcagaaa 240
cagatggaaa aaggagccat cagcaccaat caatttacaa aaccagcgag gcacccttct 300
ttaagtttca aggcctggga gtaatcttca gctcactgct gttctctggg cttgttgact 360
gtctcagagt catctttact ttttcacaaa aggtagcaca cgtttgcagc tgagtatcaa 420
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cctaacaata cagcacaagc agcttctcat ggcattaaga attgtttgta catgtaattt 120
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taatagcact gtgacgaaca tccttcttaa caaaattctt tgtctgcacc tatggttatt 240
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cttagttttc agggnggacc ngttgtctcn 330

<210> 610
<211> 1866
<212> DNA
<213> Homo sapiens

<400> 610
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aatatattac tgcttaaaaa gatttcctaw aaagaaatgt atcmagtgta tgaatcaaag 180
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ttgattacca gctaagatgc gaaatcactg tactgtagtc aataaatgaa gacttgtttc 1800
aggaaaaaaa aaaaaaaaaa aaaaaaaaaa aagttttgcc ctatagtgat cgtttacaag 1860
tcgacg 1866

<210> 611
<211> 2176
<212> DNA
<213> Homo sapiens

<220>

<221> misc feature
<222> (690)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (703)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (718)
<223> n equals a,t,g, or c

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tttcatcatt catgtaacat tctcacacag ttgaggrtat tcatctcctc accaattcca 180
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cagactcaat ttaaatctta cctttgattg ttgaaaaaag tcactaagat gtgaatacag 540
aatagacatt gagaggttat atatgtccaa aactcatctg tccagcagtc accgtcctct 600
tcagagtggt cacgttgggc agrtgggcac aggtgctggt gatgcccctc ckgggcaaaa 660
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ac 722

<210> 609
<211> 330
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (315)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (321)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (330)
<223> n equals a,t,g, or c

<400> 609
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gttattttgt gctaataaaa gagtaattaa ttccaaaaaa aaaaaaaaaa aaaaaaaaaa 660
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<210> 607
<211> 1348
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1328)
<223> n equals a,t,g, or c

<400> 607
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taatgatgta cttattcatg ctaaactttt tataaaagtt tagttgtaaa cttaaccctt 1140
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ccagtgcttt gatttttatt atgctatgtt ataactgaac ccaaataaat acaagttcaa 1260
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<210> 608
<211> 722
<212> DNA
<213> Homo sapiens

<220>

<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (897)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (904)
<223> n equals a,t,g, or c

<400> 605
cgacccacgc gtccggaccc acgcgtccgg ggaaaatggc gctggccatg ctggtcttgg 60
tggtttcgcc gtggtctgcg gcccggggag tgcttcgaaa ctactgggag cgactgctac 120
ggaagcttcc gcagagccgg ccgggctttc ccagtcctcc gtggggacca gcattagcag 180
tacagggccc agccatgttt acagagccag caaatgatac cagtggaagt aaagagaatt 240
ccagcctttt ggacagtatc ttttggatgg cagctcccaa aaatagacgc accattgaag 300
ttaaccggtg taggagaaga aatccgcaga agcttattaa agttaagaac aacatagacg 360
tttgtcctga atgtggtcac ctgaaacaga aacatgtcct ttgtgcctac tgctatgaaa 420
aggtgtgcaa ggagactgca gaaatcagac gacagatagg gaagcaagaa gggggccctt 480
ttaaggctcc caccatagag actgtggtgc tgtacacagg agagacaccg tctgaacaag 540
atcagggcaa gaggatcatt gaacgagaca gaaagcgacc atcctggttc acccagaatt 600
gacaccaaag atgttaaaag gataacttca cagtaaatca tttctcctga aatagaggaa 660
gattctttac gttgttgtgc ttgtttttaa atcatcagta tagtttaaca cattcttttct 720
aagcagtttt gtgtgggata atttgaagaa tatattatga gtaaactccg aaaattttgt 780
ttatccaaag gctcaatgga ttatgtttct attatataca aggttttaag taaacataaa 840
atttccagaa caaaaataaa aaatttaaaa ttcatagcaa aaaaaaaaaa aaggggnggc 900
cgcnctaggg g 911

<210> 606
<211> 738
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (730)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (737)
<223> n equals a,t,g, or c

<400> 606
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ggggccatga gcgccgcccg gccccagttc agcattgatg atgccttcga gctgtccctg 120
gaggacgggg gccctgggcc cgagtccagc ggggtcgcgc gctttgggcc gctgcacttc 180
gagcgtcggg cccggttcga ggtggctgac gaggacaagc agtcccggct gcgctaccag 240

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1133)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1153)
<223> n equals a,t,g, or c

<400> 603
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cagtcggacg ggcgcggaga cgcttctgga aggaacgccg cgatggctgc gcagggagag 120
ccccaggtcc agttcaaact tgtattggtt ggtgatggtg gtactggaaa aacgaccttc 180
gtgaaacgtc atttgactgg tgaatttgag aagaagtatg tagccacctt gggtgttgag 240
gttcatcccc tagtgttcca caccaacaga ggacctatta agttcaatgt atgggacaca 300
gccggccagg agaaattcgg tggactgaga gatggctatt atatccaagc ccagtgtgcc 360
atcataatgt ttgatgtaac atcgagagtt acttacaaga atgtgcctaa ctggcataga 420
gatctggtac gagtgtgtga aaacatcccc attgtgttgt gtggcaacaa agtggatatt 480
aaggacagga aagtgaaggc gaaatccatt gtcttccacc gaaagaagaa tcttcagtac 540
tacgacattt ctgccaaaag taactacaac tttgaaaagc ccttcctctg gcttgctagg 600
aagctcattg gagaccctaa cttggaattt gttgccatgc ctgctctcgc cccaccagaa 660
gttgtcatgg acccagcttt ggcagcacag tatgagcacg acttagaggt tgctcagaca 720
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tgttttggaa cgcagttgat tccttgagtt tcatatataa gactgctgca gtcacatcac 1020
aatattcagt ggtgaaatct tgtttgttac tgtcattccc attccttttc gtttagaatc 1080
agaataaagt tgtatttcaa atatctaaaa aaaaaaaaam nngggggggs cgnccattcc 1140
ccaaaggggg gtnaaaaccc gggggtt 1168

<210> 604
<211> 458
<212> DNA
<213> Homo sapiens

<400> 604
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ccatcttcgg ctaggtcgtc acaggctccg gctcatggca tcaagtggca tccatcataa 120
gatcgttaac tgaagacaat atgcaaaatt ctcacatgga tgaatacaga aattctagta 180
atggcagcac aggcaacagt tcagaggtag tggtagaaca tcctactgat ttcagtactg 240
agattatgaa cgttacagaa atggaacagt cacctgatga ctctcccaat gtgaatgcat 300
ctacagaaga aactgaaatg gcaagtgctg tggaccttcc agtgacgctg acagaaacag 360
aagcaatttc cctccagaat atgaaaaatt ttggaaaact gtagaaaata atcctcaggt 420
tttaaaggct gggtatattt gcctcaatat gtagaaca 458

<210> 605
<211> 911

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aaaatttcta cattataact cacagcattg ttccattgca ggttttgcaa tgtttggggg 360
taaagacagt agaaatatta ttcagtaaac aataatgtgt gaacttttaa gatggataat 420
agggcatgga ctgagtgctg ctatcttgaa atgtgcacag gtacacttac cttttttttt 480
ttttttttta agtttttccc attcaggaaa acaacattgt gatctgtact acaggaacca 540
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gtggggtggg taatactgtc tgtgaaataa tgtaagaagc ttttcactta aaaaaaatgc 660
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caacaattct tagagatgct agctagtgtt gaagctaaaa atagctttat ttatgctgaa 780
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gcttttctaa tgttttaacc ttgagtattg cagttgctgc tttgtacaga ggttactgca 1200
ataaaggaag tggattcatt aaactaaaaa aaaaaaaaaa aaaaaaaaaa aaaagtcgac 1260
cggccggtta tttagtagta gtaggc 1286

<210> 602
<211> 404
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (399)
<223> n equals a,t,g, or c

<400> 602
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ggaggtgttt tgtctaacca tcaaaatgtt tgagactttt ttttaaacat ttctgagttc 120
gaaggtaata ctgacagatt tcttccctct tccctcccca tcacccacct cagtgataac 180
acattactga tagaggaagt cattagaatc atttttaagt ttcagatata ggagacttca 240
tgcaatttgg agataagact aattattggg ggtttccctt ggattttttt tttaataact 300
gggggctatt ttatcagctt gcctattaaa ggactatggt aagtatagaa tcttaatggt 360
tgccagttag taattctttt tttttttttt ttactgtana caca 404

<210> 603
<211> 1168
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1121)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1122)

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atgaagatag caaatgatat tcgatttttg ggttctggtc ctcggtcagg tctgggagaa 720
ttgatcttgc ctgaaaatga accaggaagc agtatcatgc caggcaaggt gaaccctact 780
cagtgtgaag caatgaccat ggttgcagcc caagtcatgg ggaaccatgt tgctgtcact 840
gtcggaggca gcaatggaca ttttgagttg aatgttttca agccaatgat gattaaaaat 900
gtgttacact cagccaggct gctgggggat gcttcagttt cctttacaga aaactgcgtg 960
gtgggaatcc aggccaatac agaaaggatc aacaagctga tgaatgagtc tctaatgttg 1020
gtgacagctc tcaatcctca tatagggtat gacaaggcag caaagattgc taagacagca 1080
cacaaaaatg gatcaacctt aaaggaaact gctatcgaac ttggctatct cacagcagag 1140
cagtttgacg aatgggtaaa acctaaggac atgctgggtc caaagtgatt tacataaatt 1200
tataatgaaa ataaacatgt ataaatttta aaaaaaaaaa aaaaaatcgg gggggggcc 1260
ccgtacccat tgg 1273

<210> 600
<211> 1239
<212> DNA
<213> Homo sapiens

<400> 600
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ctttgctgtt caccagatgt aatgttttag ttccttacaa acagggttgg gggggggaag 120
ggcgtgcaaa aactaacatt gaaattttga aacagcagca gagtgagtgg atttatattt 180
tcgttattgt tggtggttta aaaaattccc cccatgtaat tattgtgaac accttgcttt 240
gtggtcactg taacatttgg ggggtgggac agggaggaaa agtaacaata gtccacatgt 300
ccctggcatc tgttcagagc agtgtgcaga atgtaatgct cttttgtaag aaacgtttta 360
tgatttttaa aataaattta gtgaacctat ttttggtggt catttttttt ttaagacagt 420
cattttaaaa tggtggctga atttcccaac ccaccccсaa actaaacact aagtttaatt 480
ttcagctcct ctgttggaca tataagtgca tctcttgttg gacataggca aaataacttg 540
gcaaacttag ttctggtgat ttcttgatgg tttggaagtc tattgctggg aagaaattcc 600
atcatacata ttcatgctta taataagctg gggatttttt gtttgttttt gcaaatgctt 660
gcccctactt ttcaacaatt ttctatgtta gttgtgaaga actaaggtgg ggagcagtac 720
tacaagttga gtaatggtat gagtatatac cagaattctg attggcagca agttttatta 780
atcagaataa cacttggtta tggaagtgac taatgctgaa aaaattgatt atttttatta 840
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tagtaatctt atgtaaaaaa aaaaaaaaaa aactcgaga 1239

<210> 601
<211> 1286
<212> DNA
<213> Homo sapiens

<400> 601
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tgtctatctc ttgaccttgt gatccacccg cctcagcctc ccagagtgct gggattacag 120
gtgcgagcca ctgcgcctgg ctggttttca tgaatcttga tagacatcta taacgttatt 180
attttcagtg gtgtgcagca tttttgcttc atgagtatga cctaggtata gagatctgat 240

gagacggtcg tagctgcggt cgcgccgaga aaggtttaca ggtacataca ttacacccct 240
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tccaaagctg ggcaagagca cctactacgt ttctggaatg agcttgaaga agcccaacag 360
gtagaacttt atgcagagct ccaggccatg aactttgagg agctgaactt ctttttccaa 420
aaggccattg aaggttttaa ccagtcttct caccaaaaga atgtggatgc acgaatggaa 480
cctgtgcctc gagaggtatt aggcagtgct acaagggatc aagatcagct ccaggcctgg 540
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tcccgtaaga cactttttca gattcaagca gagcgtatcc tgaagctaca gcaggttgct 720
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gaagagaaga acaaagtttc tatggctcca gatgggaatg gtggtcttta tcgggcactt 960
gcagcccaga atattgtgga ggatatggag caaagaggca tttggagcat tcatgtctat 1020
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gacaactgaa gtttaaatat ccacagggtt ttattttgct tgttgaactc ttagagctat 1980
tgcaaacttc ccaagatcca gatgactgaa tttcagatag catttttatg attcccaact 2040
cattgaaggt cttatttata taattttttc caagccaagg agaccattgg ccatccagga 2100
aatttcgtac agctgcaagt aaactgatgt tgaacatccw gctwtayttc agctggaagc 2160
atttgttttt gaagttgtac atagtaat 2188

<210> 599
<211> 1273
<212> DNA
<213> Homo sapiens

<400> 599
ataatacagt tctgagtatg tgttagaaac caggatgctg cttatttgat tctataataa 60
ctcacctatg acatgccaca catacatgta actgagctgg gttttgagta gttagttgga 120
gagtttttta attgagaagt ttaattcaga agtttgtttt tgttgcctct gatttaacat 180
tttatatttc ttttgaaaaa tttccaacag agctcaaatg atacttttcc cacagcaatg 240
cacattgctg ctgcaataga agttcatgaa gtactgttac caggactaca gaagttacat 300
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actcaggatg ctgttccact tactcttggg caggaattta gtggttatgt tcaacaagta 420
aaatatgcaa tgacaagaat aaaagctgcc atgccaagaa tctatgagct cgcagctgga 480
ggcactgctg ttggtacagg tttaaatact agaattggct ttgcagaaaa ggttgctgca 540
aaagtggctg cacttacagg cttgcctttt gtcactgctc cgaataaatt tgaagctctg 600

acaattttta aaaattaaat gatatgtatg gcttcttttg cttagcataa tgtttttgag 360
cttattcatt tgttgcatat atcaatactt tgcttctttt taccacctgt acttcattta 420
tggatacgtt gtttatccat gtgtttatcc ccaatggaca ttgggttgtt tctgattttt 480
tggttattat tatgaataaa gttgctatga acattattgt ataaaaaaaa aa 532

<210> 597
<211> 1494
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1483)
<223> n equals a,t,g, or c

<400> 597
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gctccgagcg tcggttcctc atgccatgca cctgctgtca cccagcatgc accctatttt 120
aagggtacag ccgttgtcaa tggagagttc aaagacctaa gccttgatga ctttaagggg 180
aaatatttgg tgcttttctt ctatcctttg gatttcacct ttgtgtgtcc tacagaaatt 240
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gtaatcgatt ataaaggata tttatcaaat ccagggattg cattttgaaa ttataattat 1380
tttctttgct gaagtattca ttgtaaaaca tacaaaataa acatatttta aaacatttgc 1440
attttaccac caaaaaaaaa aaaaaaaaaa cctcgggggg ggncccggtc ccca 1494

<210> 598
<211> 2188
<212> DNA
<213> Homo sapiens

<400> 598
gtcggcttcc actccttcag gcgtcggcag ccactagtcg tggcgagagg ggcggggtgg 60
ccggggctgg cgctccactt ggcccccgct cccggcccgc cccgccgccg sgcccccсgg 120
atgagggtat atattcggag ygagcgcggg acscgatgag tggccgcgcg gaaggagctg 180

<211> 1120
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (29)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (40)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (585)
<223> n equals a,t,g, or c

<400> 595
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ctcccggcc cattttgtgg gaggcgagag atctgtcaac atggaaaacc tctgctgagg 120
atgcatccga gtttggaaac cccacttaag ggatggagcc tgggggatca cattaaacgg 180
aaaatgccaa cgacttctac cacctctacg cgtttttagt ttttcatttt ctcgaaggaa 240
gcgccagaag cctgtggagt aattgtaact agagggagaa cggaaagctg aggtgactgc 300
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gaccagaatc tcttggaggg tctcctgggc cacctcggcc gcgccagtcg tgcagtgaga 420
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ggatcctgac aaagtaatgt tagagatgtg ctgacagctt tacaatagat attctccaac 1020
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ttcctattaa aaaattacca ataacagtgg aaaaaaaaaa 1120

<210> 596
<211> 532
<212> DNA
<213> Homo sapiens

<400> 596
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ttgagtaatt ccatgccttt tgacaagtgt tctgtaccca tgccacgacc accacaatcg 180
agagagaaca tcttcatcac tccagaaggg ctcctttgca gtgagtactc cctaggagtt 240
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<212> DNA
<213> Homo sapiens

<400> 593
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agttgggaaa tcctagagca accatatctg ttactttcca tcctggttat atttcttaat 180
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ggagtggtct ttagtatcct caggctgttk ccattctgct cctgctgtca attttcaagc 480
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tatgatggct ctaagctcag ctttagacca tggagtaaaa gtggttacag caggcaggct 660
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gagacagaga aggagcaatc caggttcatg tgctgcatga gcctttcatt tgcgttttgt 840
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ttaaaatgca tcccgttgtt tttgtggcgt tttcgatcct ttcttttyta atgtgtccca 960
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<210> 594
<211> 333
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (242)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (292)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (328)
<223> n equals a,t,g, or c

<400> 594
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ggcccccctc tgcctttgag cttctcctct gctccaacag acaccttcca ctctgaggtc 120
tcaccttcgc ctctgctgaa gtctccccgc agccctctcc acccagaggt ctccctatac 180
cgagacccac catccttcca tcctgaggac cgccccaacc ctcggagccc cccactcagt 240
angtctgaaa gggcttcatt tggaccgaaa caacccggtt aaccttacaa gncttctaag 300
gcttccttaa ggaacctttc aaccaaancc ttc 333

<210> 595

gccattcaca tttccacgat acactcggcc agtcagacga tctcattcac caccatcatg 1140
actttttcaa aaaaaaaaa aaaaaaaaa aaataaaaa aaaacaaaaa aaa 1193

<210> 592
<211> 2002
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1914)
<223> n equals a,t,g, or c

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cagggtggtc caggtcctca gtatcctaac tacccacagg gacaaggtca gcagtatgga 300
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tccattccat ctagtttttg gaaaaacctt gtggataagt ggctgtttca tcagtaagca 540
gcctttgtgg tttagttata aaaggcttta gtagctcaaa aatactcttg atttcacatt 600
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tatgaagggt aagggaattt aatacttttc cacagatttt tttgtaaggg gaagagggaa 780
atgtacactt tttacagcag caatattttg tatattatgt ttatttcatg tggtgaatat 840
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catggtagat gcttgattgt tttggtctca aaatggtgtg ctataaagat aaaggtgagg 960
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tctttataat tgaattggtt tttcccacgt ctaactggra acaaaacaga aggggcgtca 1860
taaatttgaa taagcagaac atactgttct caacatactg taatcaaaag gggnaatttc 1920
agtgggtctc tgtgtgtgta tgagagagag agtgtgtgtt tgtgtgtttc aaggtcagaa 1980
caggtttttt ggttttggtt tt 2002

<210> 593
<211> 1014

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agatttgccg gggcatcaag gagggccgcc tcactaagcc catcgtctgc tggtgcatcg 840
ggacgtgtgc caccatgtct cctctgaggt ccagtttggc catgctggag cttgtgccaa 900
ccaggcttct gaaactgcag tagccaagaa ccaggctttg aaggaagcag gagtgtttgt 960
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gatgggcatt ggcggggtcc tcggcctcct ctggttccag aaaaggttgc ctaagtactc 1260
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tggcagtgga gcctgcttta tttagcaggg gcctggaatg taaacagcca ctggggtaca 2040
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aaaaaaaaaa aaaaaaaaaa 2180

<210> 591
<211> 1193
<212> DNA
<213> Homo sapiens

<400> 591
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actttctaga gacaatagag actccaagac ctggaaaact cttccccaaa gatgtaagca 120
gctccactcc acccagtgtc acatcaaaga gccgggtgag ccggctggct ggtaggaaaa 180
caaatgaatc tgtgagtgag ccccgaaaag gctttatgta ttccagaaac acaaatgaaa 240
atcctcagga gtgtttcaat gcatcaaagc tactgacatc tcatggcatg ggcatccagg 300
ttccgctgaa tgcaacagag ttcaactatc tctgtccagc catcatcaac caaattgatg 360
ctagatcttg tctgattcat acaagtgaaa agaaggctga aatccctcca aagacctatt 420
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tgctgggggt tatcttagtg cctctcatga atcgggtgtt tttcaaattt ctcctgartt 540
yccytgtggc actggccgtt gggactttga gtggtgatgc tttttacac cttcttccac 600
attctcatgc aagtcaccac catagtcata gccatgaaga accagcaatg gaaatgaaaa 660
gaggaccact tttcagtcat ctgtcttctc aaaacataga agaaagtgcc tattttgatt 720
ccacgtggaa gggtctaaca gctctaggag gcctgtattt catgtttctt gttgaacatg 780
tcctcacatt gatcaaacaa tttaaagata agaagaaaaa gaatcagaag aaacctgaaa 840
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atgaggagaa agtagataca gatgatcgaa ctgaaggcta tttacgagca gactcacaag 960
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ctcatgctca tccacaggaa gtctacaatg aatatgtacc cagagggtgc aagawtaaat 1080

caccatgaat ctgaatgatg ggctgactga aaacctcatg gacgacctgc tggataacat 720
cacgctcccg ccatcccagc catcgcccac tgggggactc atgcagcgga gntctagctw 780
cccgtatacc accaagggct cgggcctgrg ctccccaacc agctccttta acagcacggt 840
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tggagaagat gcaggccca 2299

<210> 590
<211> 2180
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1353)
<223> n equals a,t,g, or c

<400> 590
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aaggaaagag caccaccctc ttcagccgcc acaccaaggc cattgtgtgg ggcatgcaga 120
cccgggccgt gcaaggcatg ctggactttg actatgtctg ctcccgagac gagccctcag 180
tggctgccat ggtctaccct ttcactgggg accacaagca gaagttttac tgggggcaca 240
aagagatcct gatccctgtc ttcaagaaca tggctgatgc catgaggaag cacccggagg 300
tagatgtgct catcaacttt gcctctctcc gctctgccta tgacagcacc atggagacca 360
tgaactatgc ccagatccgg accatcgcca tcatagctga aggcatccct gaggccctca 420
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aagaaatttg atgcccagat aatatattag gcactactga ttttttagtt aaattgatgc 1860
actacacttt tgatgtttga agttacaaac ctgtaatttt tttgtaaagg aaataattgc 1920
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gttgtaacaa atatattgca aaaacatagt ttgtaaaggc attctataag ctatttatgt 2100
aaaatcaata aaagttgatc ataattaaaa aaaaaaaaaa aaaaaaaaag tcgacgcg 2158

<210> 589
<211> 2299
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (342)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (772)
<223> n equals a,t,g, or c

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cacatggttt gttctcaagc aactggaata tggaaaggct tgaaggaata cttacacttt 120
ttgatggaag gtaatgacct tagttcttca gtatttatta gaactccatc cggcacaacc 180
tgtcactgca tagtcgattc atgcgggtcc agaatgaggg aactggcaag agctcttggt 240
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agtgtgckgc atagacacca atgggacagg aagagctcct armctggttg tgctgagatm 720
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<210> 587
<211> 847
<212> DNA
<213> Homo sapiens

<400> 587
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gctgggaaga aagaattcac ttggatggcc gaacgtttta tattgatcat aatagcaaaa 180
ttactcagtg ggaagaccca agactgcaga acccagctat tactggtccg gctgtccctt 240
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atatccccaa taggtttgaa atgaaacttc acagaaataa catatttgaa gagtcctatc 360
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aatcagagaa aggtcttgac tatgggggtg tggccagaga atggttcttc ttactgtcca 480
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ttcagatcaa ccctaattca ggcctctgta atgaggatca tttgtcctac ttcactttta 600
ttggaagagt tgctggtctg gccgtatttc atgggaagct cttagatggt ttcttcatta 660
gaccatttta caagatgatg ttgggaaagc agataaccct gaatgacatg gaatctgtgg 720
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tcatgttctg catagacgaa gaaaactttg gacagacgtc gaccggccgc taatttagta 840
gtagtag 847

<210> 588
<211> 2158
<212> DNA
<213> Homo sapiens

<400> 588
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actccgtgtt gcagattact attttttac accatacgtg tatccagcca catggccaga 180
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acatccacaa tttttaaaga atcaagtccg tcgagagatt aagtttactg tccaggcatt 360
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aagtcatgct tttcacccta ttgatggctt tcttcagagt ctaccttacc atatataccc 660
ttttatcttt ccattacaca aggtggttta tttaagtctg tacatcttgg ttaatatctg 720
gacaatttcc attcatgacg gtgattttcg tgtcccccaa atcttacagc catttattaa 780

cccaagtccc c 1931

<210> 585
<211> 1020
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1006)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1018)
<223> n equals a,t,g, or c

<400> 585
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cccgccaaga gagccccaga gcagaggaaa atccaaagtg gagagagggg aagaaagaga 180
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<210> 586
<211> 767
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (617)
<223> n equals a,t,g, or c

<400> 586
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gattcataag ctggcctgag gtgatcttgg catcaaggaa gggatgcaca tcatcacacc 180
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<222> (21)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1871)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1899)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1907)
<223> n equals a,t,g, or c

<400> 584
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<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (465)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (485)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (493)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (501)
<223> n equals a,t,g, or c

<400> 583
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ctttnggggg ggnaaaaaaa naaaaaa 507

<210> 584
<211> 1931
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (2)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (8)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<211> 2528
<212> DNA
<213> Homo sapiens

<400> 582
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gagtgagtgt gttcaaagat caacatattt aacttttaaa cactatctca aagccagcat 180
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<210> 583
<211> 507

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<210> 581
<211> 565
<212> DNA
<213> Homo sapiens

<400> 581
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cccaaaagtt tgttacccaa gatgatgaat gctgacatgg atgcagttga tgctgaaaat 180
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<210> 582

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<210> 580
<211> 4006
<212> DNA
<213> Homo sapiens

<400> 580
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<210> 579
<211> 2525
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (22)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (76)
<223> n equals a,t,g, or c

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aaaaaaaaaa aaaaaaaaaa aaaanaaaan n 1531

<210> 578
<211> 1244
<212> DNA
<213> Homo sapiens

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gaggcccaga actggagagc taaggcatac ttcatcagct tagcacatga cgactgtctc 240
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<210> 577
<211> 1531
<212> DNA
<213> Homo sapiens

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<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (433)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (435)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1525)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1530)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1531)
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<221> misc feature
<222> (2443)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2464)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2472)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2494)
<223> n equals a,t,g, or c

<400> 576
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<223> n equals a,t,g, or c

<400> 574
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ccgcagcagt ggatagaggt gcagatct 328

<210> 575
<211> 1678
<212> DNA
<213> Homo sapiens

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gtaagccaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaac 1678

<210> 576
<211> 2508
<212> DNA
<213> Homo sapiens

<220>

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<211> 328
<212> DNA
<213> Homo sapiens

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<220>
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<220>
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<210> 573
<211> 2352
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (2096)
<223> n equals a,t,g, or c

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<211> 2657
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1285)
<223> n equals a,t,g, or c

<400> 572
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acgaggaagc cacttcctca gagagaccct accagatgcg gatggaaaca gatgcaccaa 180
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aaaa 1144

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<211> 2754
<212> DNA
<213> Homo sapiens

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<221> misc feature
<222> (2610)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2611)
<223> n equals a,t,g, or c

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<210> 569
<211> 1385
<212> DNA
<213> Homo sapiens

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aaaaa 1385

<210> 570
<211> 1144
<212> DNA
<213> Homo sapiens

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<211> 1606
<212> DNA
<213> Homo sapiens

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<210> 567
<211> 1364
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1362)
<223> n equals a,t,g, or c

<400> 567

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<211> 364
<212> DNA
<213> Homo sapiens

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ggct 364

<210> 566
<211> 2481
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1213)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1214)
<223> n equals a,t,g, or c

<400> 566
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<210> 564
<211> 2299
<212> DNA
<213> Homo sapiens

<220>
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<222> (179)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (180)
<223> n equals a,t,g, or c

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cccccccccc cgcccctttt tttytytytt gcaaaaccat tttttgggct gataacgtat 240
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gacttaggat tattaatgaa agtgttgcac cagttttttc atgttgtaaa actaaagaat 480
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ggggccaagt tacgcgg 2417

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<211> 1544
<212> DNA
<213> Homo sapiens

<400> 563
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gttataaaac cgccacagtc ttcaatccag atttgaagac tcatgccata ggtgacattc 180
taaaatacca ttaaagccac ttaaatgtta aataagaata tacatgcaca tcagctcaat 240
gtctttgagt attaatttta tgtaagcatt ctatttaaca tgaatatagg acaaatcatg 300
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<210> 562
<211> 2417
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (2362)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2386)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2398)
<223> n equals a,t,g, or c

<400> 562
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tgagcttgtg agcggctgtg gcgccccaac tcttcgccag catatcatcc cggcaggcga 180
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<210> 561
<211> 1717
<212> DNA
<213> Homo sapiens

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<221> misc feature
<222> (386)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (427)
<223> n equals a,t,g, or c

<400> 561
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<210> 560
<211> 2645
<212> DNA
<213> Homo sapiens

<400> 560
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<211> 3125
<212> DNA
<213> Homo sapiens

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<220>
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<223> n equals a,t,g, or c

<400> 557
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ggagaccgag gcatacctgg ggccagagga tgaagccgcc cactcaaggg gtggccggca 480
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ccaggccctg gccatcaaca agagctttga ccagagggac ctggcacagg atgaagctgt 780
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cctgcccaga caagattttt taattgttta aaaaccgaat aaatgtttta tttctagaaa 1020
aaaaaaaaaa aaaaaaactc gngggggggc ccggnaccca attngcccta aagtgatgg 1079

<210> 558
<211> 724
<212> DNA
<213> Homo sapiens

<400> 558

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ctctgcaccg ggccgtccag tgcaccagtg actacccaga gcacgtctgc gaagtgttac 840
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<210> 557
<211> 1079
<212> DNA
<213> Homo sapiens

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gcaactacag ccgcgaacag cacggcgtgg ccgcctcctg cctcgaagac ctgaggagca 240
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agaatgtggc caggcagctg aaagaagatc tgtccagcat catcctccta tcagaggagg 540
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gtgccaccgt ccagcggctg cagcacacac tccaacaggt gcttgaccaa agagaggaag 660
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<210> 556
<211> 3355
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (210)
<223> n equals a,t,g, or c

<400> 556
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ttgtattttc taagaagttg tagtgttttc tccaaacttc cttgatctgg aacttttctt 180
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tggtaacaaa tcctgacttt tctccaactc cagtaacctt cgagaaagct ttgaatgccg 420
gcttcatcca ggccactgat tatgtggaga tttggcaggc ataccttgat tacctgagga 480
gaagggttga tttcaaacaa gactccagta aagagctgga ggagttgagg gccgccttta 540
ctcgtgcctt ggagtatctg aagcaggagg tggaagagcg tttcaatgag agtggtgatc 600
caagctgcgt gattatgcag aactgggcta ggattgaggc tcgactgtgc aataacatgc 660

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agaacaacat agcatgga 2658

<210> 555
<211> 1728
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1517)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1525)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1641)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1642)
<223> n equals a,t,g, or c

<400> 555
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<400> 553
ggcacagaag gaactcacca aggcccatra gctggaggtr aggctgcaca ctttcagcat 60
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cgacagtggc ctgaccatcg agaagtcctg gagggagctg gtgcctgggc acaaggagat 180
gagccaggag ctytgccacc aacaggaggc cctgtggrag ctcctgacca ccgagctgat 240
cttacgtgag aaagcttcaa gatcatgaac tgatcttg 278

<210> 554
<211> 2658
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1292)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2128)
<223> n equals a,t,g, or c

<400> 554
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gcactcgctg ggacactgtc tgtaaactct ctgtttccaa acaaagccgg cttgagcagg 600
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ctctcattga cacccataag gaattcatga agaaagtaga agaaaagcga gtggacgtta 780
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<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1608)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1623)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1629)
<223> n equals a,t,g, or c

<400> 552
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gtnaacaanc cggg 1634

<210> 553
<211> 278
<212> DNA
<213> Homo sapiens

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gcctcaagac tgggaccgcg ttgtagccgt tttgtgcag ggtcctgcat ggcagttcaa 1020
aggttggcca tggcttttgc ctgatggatc accagttgat atatttgcta aaattaaagc 1080
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aatatctttc catttgaaaa aaatctcaaa acacagatta aaaccacaat aggctgtagt 1980
atttttttatt ttgggagcca gagtatgatt tgggggaaga atatgtatca gccctattgc 2040
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<210> 552
<211> 1634
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (14)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1468)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1509)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1519)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1566)

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ggccttatat atcacactat tgtagaaagt attatttaat ttaaatggat gcaggttgtc 1200
tactaaagaa agattatata taactatgct aattgttcat aatcaacaga aaccaagata 1260
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gaattaagtc tccgattatt aggtgatcac cctggatgat cagttttctg ctgaaggcac 1380
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gttcaacttt tgtgtgcttt taaaatcagc tttattctaa gcaaatctgt gtctacttta 1500
aaaaactgga aatggaaaaa aaaataaatc tttgccaaat cctaaaaaaa aaaaaaaaaa 1560
ymgggggggg cccngganc c aattnc 1586

<210> 551
<211> 2143
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1602)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2086)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2097)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2140)
<223> n equals a,t,g, or c

<400> 551
cgtccgcgga cgcgtgggcg gacgcgtggg cgagctgcag atgaagtttt agcagaagca 60
aagaaaccac gaattgagga tgaagagtgt gtgcgccttg ataaagagag attggctgcc 120
cgtttggagg gtcacaaaga agggattgta cagactgaac agattaggtc tttgtctgaa 180
gctatgtcag tggaaaaaat tgctgcaatc aaagccaaaa ttatggctaa gaaaagatct 240
actatcaaga ctgatctaga tgatgacata actgccctta aacagaggag ttttgtggat 300
gctgaggtag atgtgacccg agatattgtc agcagagaga gagtatggag gacacgaaca 360
actatcttac aaagcacagg aaagaatttt tccaagaaca tttttgcaat tyttcaatct 420
gtaaaagcca gagaagaagg gcgtgcacct gaacagcgac ctgccccaaa tgcagcacct 480
gtggatccca ctttgcgcac caaacagcct atcccagctg cctataacag atacgatcag 540
gaaagattca aaggaaaaga agaaacggaa ggcttcaaaa ttgacactat ggggaacyta 600
ccatggtatg acactgraat ctgtaacgga gggtgcatct gcccggaaga ctcagactcc 660
tgcagcccag ccagtaccaa gaccagtttc tcaagcwaga cctcccccaa atcagaagaa 720
aggatctcga acacccatta tcataattcc tgcagctacc acctctttaa taaccatgct 780
taatgcaaaa gaccttctac aggacctgaa atttgtccca tcagatgaaa agaagaaaca 840

<400> 549
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cccctaaaaa gggctccaag aaagccgtca ccaaagccca gaagaaagac ggcaagaagc 120
gcaagcgcag ccgcaaagag agctactcca tctacgtgta caaggtgctg aagcaggtcc 180
accccgacac cggcatctcg tccaaggcca tgggcatcat gaactccttc gtcaacgaca 240
tcttcgagcg catcgsggga gaggcttccc gcctggcgca ctacaacaag cgctccacca 300
tcacatcccg cgagatccag acggccgtgc gcctgctgct gcccggcgag ctggccaagc 360
acgccgtgtc cgagggcacc aaggcggtca ccaagtacac cagctccaag tgagtccctg 420
ccgggacctg gcgctcgctc gctcgagtcg ccggctgctt gactycaaag gctcttttca 480
garccaccca cctaatcact agaaaarnan cttngttcac ttaatttccc ctttaatttc 540
tttttccata aaargttaag ttaattttta agnggtgaaa ggntca 586

<210> 550
<211> 1586
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1574)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1578)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1585)
<223> n equals a,t,g, or c

<400> 550
ccgctcagtc cgggagcgca gctgggccgc ggcgctccga cctccgcttt cccaccgccc 60
gcagctgaag cacatcccgc agcccggcgc ggactccgat cgccgcagtt gccctctggc 120
gccatgtcgc agaacggagc gcccgggatg caggaggaga gcctgcaggg ctcctgggta 180
gaactgcact tcagcaataa tgggaacggg ggcagcgttc cagcctcggt ttctatttat 240
aatggagaca tggaaaaaat actgctggac gcacagcatg agtctggacg gagtagctcc 300
aagagctctc actgtgacag cccacctcgc tcgcagacac cacaagatac caacagagct 360
tctgaaacag atacccatag cattggagag aaaaacagct cacagtctga ggaagatgat 420
attgaaagaa ggaaagaagt tgaaagcatc ttgaagaaaa actcagattg gatatgggat 480
tggtcaagtc ggccggaaaa tattcccccc aaggagttcc tctttaaaca cccgaagcgc 540
acggccaccc tcagcatgag gaacacgagc gtcatgaaga aaggggggcat attctctgca 600
gaatttctga aagttttcct tccatctctg ctgctctctc atttgctggc catcggattg 660
gggatctata ttggaaggcg tctgacaacc tccaccagca ccttttgatg aagaactgga 720
gtctgacttg gttcgttagt ggattacttc tgagcttgca acatagctca ctgaagagct 780
gttagatcct ggggtggcca cgtcacttgt gtttatttgt tctgtaaatg ctgcgttcct 840
aatttagtaa aataaaagaa tagacactaa aatcatgttg atctataatt acacctatgg 900
gatcaataag catgtcagac tgattaatgt ctactgtgaa aatttggtag taaattttca 960
tttgatatta gatataaata tctgaatata aataatttta atatactagt catgatgtgt 1020

<211> 630
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (61)
<223> n equals a,t,g, or c

<400> 548
gcggttgtac atttggtcta gcgatgaaaa ctgagggaaa ggatgtaggg cctcctggct 60
naaccagcca gggggaaagg ggaggtttcc ggtgtcagct gtctctggtt gtctccataa 120
ccagttctta cttgcctgtg cagactttga ggggaaggtt gtgaagactt cggttgtgtt 180
ccaccaactg gggacagcca tgcctatgtc ggtggaggaa gggcctgagt gccagggacc 240
tgtggttgac agcgctgccc tcgatgtggt catgaaggaa tggcatacca caccagacag 300
atgcgttcag ccgatgaagg gcaaactgtc ttctacacct gtaccaactg caagttccag 360
gagaaggaag actcttgacc tttttcctgg gcaactctrc agtccctccc tcctttcgga 420
aggtgaagga tactgggttt ttagatgcct tgtccatcct gtctggttgc aatgttttgc 480
tcccagaaga gaatcagatc atcatgtggg gattaccatt gttcctggag tactcctacc 540
cttagttgaa tttccttatt aaagttatat ttttctataa gaaaaaaaaa aaaaaaaaaa 600
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 630

<210> 549
<211> 586
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (508)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (510)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (514)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (573)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (583)
<223> n equals a,t,g, or c

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gcttgccaat gaagatttaa agacagagca ggagcttctt ccaggagttc tgagccttgg 1680
ttgtggacaa aacaatctta agttgggcag ctttcctcaa cacaaaaaaa gttattaatg 1740
gtcattgaac cataactagg actttatcag aaactcaaag cttgggggat aaaaaggagc 1800
aagagaatac tgtaacaaac ttcgtacaga gttcggtcta ttaattgttt catgttagat 1860
attctatgtg tttacctcaa ttgaaaaaaa aaagaatgtt tttgctagta tcagatctgc 1920
tgtggaattg gtattgtatg tccatgaatt cttcttttct cagcacgtgt tcctcactag 1980
aagaaaatgc tgttaccttt aagctttgtc aaatttacat taaaatactt gtatgaggac 2040
tgtgacgtta tgttaaaaaa aaaaggtgtt aagtcacaaa aagcggtaat aaatatttca 2100
tttttgaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaactc ga 2142

<210> 547
<211> 1893
<212> DNA
<213> Homo sapiens

<400> 547
cagtaccggt ccggaattcc cgggtcgacc cacgcgtccg ataatttata agcattgcca 60
ttgaaggctt aattgactga aattacttta acattttgga aattgttgta tatcactaaa 120
agcatgaatt ggaactgcaa tgaaagtcaa atttacttta aaaagaaatt aatatggctt 180
caccaagaag caaagttcaa cttatttcat aattgcctac atttatcatg gtcctgaatg 240
tagcgtgtaa gcttgtgttt cttgggcagt ctttcttgaa attgaagagg tgaaatgggg 300
gtggggagtg ggaggaaagg tgacttcctc tggtgtttat tataaagctt aaattttata 360
tcattttaaa atgtcttggt cttctactgc cttgaaaaat gacaattgtg aacatgatag 420
ttaaactacc acttttttta accattatta tgcaaaattt agaagaaaag ttattggcat 480
ggttgttgca tatagttaaa ctgagagtaa ttcatctgtg aatctgcttt aattacctgg 540
tgagtaactt agaaaagtgg tgtaaacttg tacatggaat tttttgaata tgccttaatt 600
tagaaactga aaaatatcyg gttatatcat tctgggtgtg ttcttactga caccaggggt 660
ccgctgcccc atgtgtcctg gtgagaaaat atatgcctgg cacagctttt gtatagaaaa 720
ttcttgagaa gtaactgtcc gctagaagtc tgtccaaatt taaaatgtgt gccatattct 780
ggttcttgaa aataagattc cagagctctt tgatcgcttt taataaactg caagttcatt 840
ttaaatgaag ggccagcata tatacttgca agataatttt cagctgcaag gattcagcac 900
cagttatgtt tgaatgaacc ctccttttct ctgagattct ggtccctgga aatccctttc 960
tgctagtggt gagcatgtaa gtgttaagtt tttaatctgg gagcagggca taggaagaaa 1020
atgtcagtag tgctaatgca ttttgcacta gaacgcttcg ggaaaatatt catgcttgcc 1080
atctgttcat ttctaaattt atattcataa agttacagtt tgatacagga attattagga 1140
gtaattcttt tctgtttctg tttataatga agaacactgt agctacattt tcagaagtta 1200
acatcaagcc atcaaacctg ggtatagtgc agaaaacgtg gcacacactg accacacatt 1260
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cagtcttatt taaccagggg tcctaaccac taacattgtg actttgcttt gagacctttc 1740
ctctcctggg tactgaggtg ctatgaagcc aactgacaaa gatgcatcac gtgtcttagg 1800
ctgatgccac tacccgattt gtttatttgc aatttgagcc atttaaagac caataaactt 1860
cctttttaa aaaaaaaaa aaaaaaaaa aaa 1893

<210> 548

tatgtatgat gctataaaat aaatcctatt atttctmag natmtggttg anattctgcg 660
aaagcaacaw gcaaactgaa gaccaactcc tatgagaaat attatgatgt ttatgtaata 720
aagacatgta actgtcttaa awwwaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaa 778

<210> 546
<211> 2142
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (32)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (225)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (619)
<223> n equals a,t,g, or c

<400> 546
gacctttgg agttagaaaa ggtccacgat tngtgcgata acttctgcca ccgatacatt 60
agctgtttga aggggaaaat gcccatcgac mtcgtcattg atgaaagaga cggcagctcc 120
aagtcagatc atgaagaact ttcaggctcc tccacaaatc tcgctgacca taacccttct 180
tcttggcgag accacgatga tgcaacctca acccactcag caggncaccc cagggccctc 240
cagtgggggc catgcttccc agagcggaga caacagcagt gagcaagggg atggtttaga 300
caacagtgta gcttcacctg gtacagtgac cgatgatgat ccggataagg acaaaaaacg 360
ccagaagaaa agaggcattt tccccaaagt agcaacaaat atcatgagag catggctctt 420
ccagcatctc acacatccgt acccttccga agagcagaag aaacagttag cgcaagacac 480
aggacttaca attctccaag taaacaactg gtttattaat gccagaagaa gaatagtaca 540
gcccatgatt gaccagtcaa atcgagcagg ttttcttctt gatccttcag tgagccaagg 600
agcagcatat agtccagang gtcagcccat ggggagcttt gtgttggatg gtcascaaca 660
catggggatc cggcctgcag gtttgcagag catgccaggg gactacgttt ctcagggtgg 720
tcctatggga atgagtatkg cacagccaag ttacactcct ccccagatga ccccacaccc 780
tactcaatta agacatggac ccccaatgca ttcatatttg ccaagccatc cccaccaccc 840
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ccacactatg tgtgttgttc ccaaaagaat gactgttttg gttcatcagt gaattcacca 1380
tccaggagag actgtggtat atattttaaa cctgttgggc caatgagaaa agaaccacac 1440
tggagatcat gatgaacttt tggctgaacc tcatcactcg aactccagct tcaagaatgt 1500
gttttcatgc ccggcctttg ttcctccata aatgtgtcct ttagtttcaa acagatcttt 1560

cactagctta ttcttccctg ttataaaatg gtttgaactt actgaggaga tattcctatc 1860
attaacaaaa ataaactatt taaataawaa aaaagtcgac g 1901

<210> 544
<211> 842
<212> DNA
<213> Homo sapiens

<400> 544
ctgacagtac cggtccggaa ttcccgggtc gacccacgcg tccgaacagt gttctaacta 60
ttaacgctac gatgcctgaa cctaccaagt ctgctcctgc cccaaagaag ggctccaaga 120
aggcggtgac taaggctcag aagaaggacg ggaagaagcg caagcgcagc cgcaaggaga 180
gctattcagt gtatgtgtac aaggtgctga agcaggtcca tcccgacacc ggcatctctt 240
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ctcatctgcc tgaaaatgac tgtgtggatc ccacccaaat ccaactcatc ctggtttgct 600
gcacactggt tcatcaaaag aaggttaccg aggggaagga actaaaggtg tttgcacttc 660
atgttacttt ttgagtttat aaacataaaa acagaattta cttctgttac agacctagtt 720
actgggaatt cattacttgc catggactac ctttgctaag aaaagtctga atgagaagat 780
ggcaggacgt ctgaaaaaaa aagttataat taataaaatc tgcggagaat tgtaaaaaaa 840
aa 842

<210> 545
<211> 778
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (641)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (652)
<223> n equals a,t,g, or c

<400> 545
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ctctttgcct cagccacttc cttccttcgc ctcaccctcc ccagtgcact gaagaaggta 120
accgggtcca gacccacgcg gcgccagttc tccggcggga aggaaaaccg cgcagagagg 180
cagcaatgaa tgtggatcac gaggttaacc tcttagtgga ggaaattcat cgtttgggtt 240
caaaaaatgc tgatggaaag ttaagcgtga aatttggggt cctcttccgt gatgataaat 300
gtgccaacct ctttgaagca ttggtaggaa ctcttaaagc tgcaaaacga aggaagattg 360
taacatatcc aggagagctg cttctgcaag gtgttcatga tgatgttgac attatattac 420
tgcaagatta atgtggttta catatcttta tgtactgcca tttttgttt ctggtaaact 480
ggaatataaa gtgaaagaac aaacatttga acatacttaa tgtattttta tagaactttg 540
taaacgaaag gagattcatg ttttagaagt ctgtcctttt ttatatcttg aaagaaaatc 600

aattagaaca gttaccagaa cacatcaagg agccaatctg ggaaacacta tcagaagaaa 600
aagaagaaag caagtcataa agcctcaggg aggccatttt tgcctaaatt tgaaatgagg 660
gtgggccaga tgagtatgtt taagtggaga gtgcttccag ctgagatgat ttgagtctgy 720
cctaactgct ccattgagtt ctcgtgccct catcagctga gggcagggaa tggaacttta 780
atggaagaac cacttttatc tattcttttt attcattgtt tcagttctga tttcagcaaa 840
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gaactttata gagttgccta ccagggttac tgtaatggaa tttatgatct taagaaatta 1260
ctagttgtat tatttatcct atgattcatn cattcaataa gcttttactg cataaacttt 1320
acattcagca ctgtagttaa gtaccca 1347

<210> 543
<211> 1901
<212> DNA
<213> Homo sapiens

<400> 543
ggacaaatta aggatgaaac tcttcaggct gcagttagag aaattttggc cctaattggc 60
tatgtggatc cagtgaaagg gagaggaatc cgaattctct caattgatgg tggaggaaca 120
aggggcgtgg ttgctctcca gaccctacga aaattagttg aacttactca gaagccagtt 180
catcagctct ttgattacat ttgtggtgta agcacaggtg ccatattagc tttcatgttg 240
gggttgtttc atatgccctt ggatgaatgt gaggaacttt atcgaaaatt aggatcagat 300
gtattttcac aaaatgtcat tgttggaaca gtaaaaatga gttggagcca tgcattttat 360
gacagtcaaa catgggaaaa cattcttaag gataggatgg gatctgcact gatgattgaa 420
acagcaagaa accccacatg tcctaaggta gctgctgtaa gtaccatagt aaatagaggg 480
ataacaccca aagcttttgt gttcagaaac tatggtcatt ttcctggaat caactctcat 540
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gtccatataa tgcttgatgg cctgttacct cctgacacct attttagatt caatcctgta 900
atgtgtgaaa acatacctct agatgaaagt cgaaatgaaa agctggatca gctgcagttg 960
gaagggttga aatacataga aagaaatgaa caaaaaatga aaaaagttgc aaaaatatta 1020
agtcaagaaa aaacaactct gcagaaaatt aatgattgga taaaattaaa aactgatatg 1080
tatgaaggac ttccattctt ttcaaaattg tgatgagtat atgcttatgt tctcataaat 1140
gaaggtctgt ttagaagatc aaccacattc aataaggaat tgtggggttc gacatgagtt 1200
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gaaaaatgga atttctctta ttaaagtatt ttacatttga cataaaaaag aaccagatac 1680
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gtgacacagc tagggtcttc ctagcagctc ctcctcctcc ctcccaaggc ccccaggaat 540
cccttcctcc catgtcctgg cagcaggacc ccaggctaca tatggaaggt agagatgtgg 600
gggtcctgtr tcctggagta ttatgtctcc ccaccttctg cagttttctc tgaacatgta 660
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<212> DNA
<213> Homo sapiens

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<222> (1290)
<223> n equals a,t,g, or c

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agcgatttac tcttctccaa tcagtgcata tttacaagaa gcacagagtt cagtatgaaa 420
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<211> 2259
<212> DNA
<213> Homo sapiens

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<222> (2242)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2247)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2250)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2253)
<223> n equals a,t,g, or c

<400> 541
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cgggcttata aaaatctgtg ccatcatggt gattttatcc aagactgctc cacttacccc 180
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<210> 540
<211> 1080
<212> DNA
<213> Homo sapiens

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<222> (970)
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<220>
<221> misc feature
<222> (978)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1027)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1044)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1067)
<223> n equals a,t,g, or c

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<210> 538
<211> 1016
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (147)
<223> n equals a,t,g, or c

<400> 538
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aagtgctggg attacaggcg taacacncgg gcctggcctg ttttatgatt cttaatagtt 180
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<210> 539
<211> 1679
<212> DNA
<213> Homo sapiens

<400> 539
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<210> 537
<211> 1233
<212> DNA
<213> Homo sapiens

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<222> (1111)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1122)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1137)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1202)
<223> n equals a,t,g, or c

<400> 537
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<211> 1397
<212> DNA
<213> Homo sapiens

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<211> 2818
<212> DNA
<213> Homo sapiens

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<212> DNA
<213> Homo sapiens

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<223> n equals a,t,g, or c

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<210> 533
<211> 2857
<212> DNA
<213> Homo sapiens

<400> 533

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<211> 1466
<212> DNA
<213> Homo sapiens

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aaaaaaaaaa aaaaaaaaaa aaaaaa 1466

<210> 532
<211> 1658
<212> DNA
<213> Homo sapiens

<400> 532
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<210> 530
<211> 1425
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1409)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1411)
<223> n equals a,t,g, or c

<400> 530
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<210> 529
<211> 1944
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (568)
<223> n equals a,t,g, or c

<400> 529
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<210> 527
<211> 1305
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1293)
<223> n equals a,t,g, or c

<400> 527
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<211> 1631
<212> DNA
<213> Homo sapiens

<220>
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<222> (1628)
<223> n equals a,t,g, or c

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gagccgagcc gagccgagcc ggagcgggcg gcgaaggccg gcgcggcgag cagcaaccat 120

<221> misc feature
<222> (2475)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2500)
<223> n equals a,t,g, or c

<400> 526
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<213> Homo sapiens

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caacccсttg ggtgaaagaa gtgaggaaaa ttaatgacca gtatattgca gtgcaaggag 180
cagagttgat aaaaacagta gatattgaag aagctgaccc gccacagcta ggtgacttta 240
caaaagactg ggtagaatat aactgcaact ccagtaataa catctgctgg actgaaaagg 300
gacgcacagt gaaagcagta tatggtgtgt caaaacggtg gagtgactac actctgcatt 360
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aaataccttg ctacttctgt agcctgctct cactttgyct ttycttaagg taattatggg 720
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cngtaaatgc ctaa 794

<210> 526
<211> 2599
<212> DNA
<213> Homo sapiens

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<222> (57)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2410)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2461)
<223> n equals a,t,g, or c

<220>

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acggaaaggg gagcacccgg agtcagtgtc gatatgaaca taacgtacat gtcacctgca 480
aaattaggag aagatatagt gattacagca catgttctga agcaaggaaa aacacttgca 540
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acaaaacacc tgggaaactg agagaacagc agaatgacct aaagaaaccc aacaatgaat 660
atcaagtata gatttgactc aaacaattgt aatttttgaa ataaactagc aaaaccagaa 720
gcagctagaa atattcttgg aggaaaagga cctggatatc aagtagggta aaggtggggg 780
tgtctttttt cactttaagc atcttgtttt ctaatcatgt gtgataattg ggtgaaaaat 840
tcttagctca aagtgtttta aaaacaggta aagcaaagaa actagcagga ccactctcag 900
ttaagattaa aactaaagtc cagtgttaag ctaaaggaga aatagaaatt aatggttcta 960
attctgtttg ggctgctagg aacaacagaa atttttcatg gttctagaag ctggaaagtc 1020
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<211> 1963
<212> DNA
<213> Homo sapiens

<400> 524
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attttgaaca aggccttatt ctttcaggaa gacaactaat ggatgatagc aagttcatcc 180
acttactggg cttgtgccat gagcaaaatt caaagtcctg tatatctttc attgtagatt 240
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cccaaattac gttccttttg acattttcct catctgctgt ttgtgacaag tcatcagcca 420
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aaggaggatg acatgctgtc tcctctcttc agtatagaca ttaggctctt attcagaaag 600
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cactttgtaa accatttata gctttgaaag tgttaagtga ttccttcgtt attatttatg 780
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tatagactaa atcaggggtt tgttctacaa gaacaataca tgttttaccc tttcctttaa 1500
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<210> 522
<211> 1303
<212> DNA
<213> Homo sapiens

<220>
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<222> (1279)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1286)
<223> n equals a,t,g, or c

<400> 522
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gatgcaaagt ggcttatcca gagaattatt tgaaagctgg tgtactgata agaggaatgg 180
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<210> 523
<211> 1100
<212> DNA
<213> Homo sapiens

<400> 523
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<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2516)
<223> n equals a,t,g, or c

<400> 521
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<210> 521
<211> 2521
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1721)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2477)

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tagacaacat acttt 3315

<210> 520
<211> 2361
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (2121)
<223> n equals a,t,g, or c

<400> 520
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<220>
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<222> (947)
<223> n equals a,t,g, or c

<400> 518
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<210> 519
<211> 3315
<212> DNA
<213> Homo sapiens

<400> 519
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cagaaaagca ggccccgcca aggagcagga gcccatgccc acagtcgaca gccatgagcc 360
ccggctgggg ccgcggcctc gctctcacaa caaggtcctg aacccaccgg gaggcaaatc 420
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<210> 518
<211> 989
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (336)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (871)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (891)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (910)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (913)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (926)
<223> n equals a,t,g, or c

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tagtgtgcaa gaacgagatg ttctaatgac tttttaaatg tgtaacttaa taagcctatt 240
ccatcacaat catgatcgct ggtaaagtag ctcagtggtg tggggaaacg ttcccctgga 300
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<210> 517
<211> 2451
<212> DNA
<213> Homo sapiens

<400> 517
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ctagaagcag acsatmtcgg gctccaagta tttcagaatg atttaaaaag tcatgccaca 240
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cactccttca cctagggatg tgtttgttgc cctcctaccc aattgtcatg attgtcctta 480
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<220>
<221> misc feature
<222> (864)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (880)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (911)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (912)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (921)
<223> n equals a,t,g, or c

<400> 515
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<210> 516
<211> 1159
<212> DNA
<213> Homo sapiens

<400> 516
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gttaaaacaa gacttacaat tcctaaatgt gtaactgaga ataaaacgta ctctgttaag 1920
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<210> 514
<211> 1177
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (24)
<223> n equals a,t,g, or c

<400> 514
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<210> 515
<211> 932
<212> DNA
<213> Homo sapiens

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<210> 513
<211> 1936
<212> DNA
<213> Homo sapiens

<400> 513
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acagactgtc gctattaccc tgccaagatt gaagcaatta acaaagaagg aacatttaca 360
gttcagtttt atgatggagt aattcgttgt ttaaaaagaa tgcacattaa agccatgccc 420
gaggatgcta aggggcagga ttggatagct ttagtcaaag cagctgctgc agctgcagcc 480
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gatgagagaa agtggtttaa agtaccttca aagaaggagg aaacttcaac ttgtatagcc 600
acaccagacg tagagaagaa ggaagatctg cctacatcta gtgaaacatt tggacttcat 660
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acagctccaa tgctggagca ggcgatttca cctaaacctc aaagtcagaa aaaaaatgaa 900
gctgacatta gcagttctgc caacactcag aaacctgcac tgttatcctc aactttgtct 960
tcagggaagg ctcgcagcaa gaaatgcaaa catgaatctg gagattcttc tgggtgtata 1020
aaacccccta aatcaccact ttccccagaa ttaatacaag tcgaggattt gacgcttgta 1080
tctcagcttt cttcttcagt gataaataaa actagtcctc cacagcctgt gaatcccccct 1140

<221> misc feature
<222> (1283)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (3641)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (3650)
<223> n equals a,t,g, or c

<400> 512
gcggactgcg tcttcgtgga ggacgtggcc gtggtgtgcg aggagacggc cctcatcacc 60
cgacccgggg cgccgagccg gaggaaggag gttgacatga tgaaagaagc attagaaaaa 120
cttcagctca atatagtaga gatgaaagat gaaaatgcaa ctttagatgg cggagatgtt 180
ttattcacag gcagagaatt ttttgtgggc ctttccaaaa ggacaaatca acgaggtgct 240
gaaatcttgg ctgatacttt taaggactat gcagtctcca cagtgccagt ggcagatggg 300
ttgcatttga agagtttctg cagcatggct gggcctaacc tgatcgcaat tgggtctagt 360
gaatctgcac agaaggccct taagatcatg caacagatga gtgaccaccg ctacgacaaa 420
ctcactgtgc ctgatgacat agcagcaaac tgtatatatc taaatatccc caacaaaggg 480
cacgtcttgc tgcaccgaac cccggaagag tatccagaaa gtgcaaaggt ttatgagaaa 540
ctgaaggacc atatgctgat ccccgtgagc atgtctgaac tggaaaaggt ggatgggctg 600
ctcacctgct gtcagtttta attaacaaga aagtagactc ctgagctgca gagtcccccc 660
gggwagccgg caagaccgca caggcaaggc cgatgactct gtgcccactc ctgttgtttt 720
ccttgacaat ctactgtgcc actgtgctac taactcttgt ttacaaaatt tgattctaag 780
ttgaattgct tcattcaaca cmcccacccct ccctcccctc gmggtggtac ctaagctgtg 840
gatttgctaa atgaattaag caacctagaa gatacagagc yaatgaatta tcaaaatgtg 900
attaatccca gtaaggaaac actcatttag tgtctgtatt tttggtgtga aaattattta 960
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cctttctctt ttacttctga attctgaaat tcagttagtt acttttgcct ttcgctcttc 1140
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cctagtcatc tccacctttc ctgtattgcc tgtggcttgt tgtttaagat taagaatcaa 2100
agagattaag aagtatcact tcaagtcttg ctctgctcac ttctatgttt gcagtcaaat 2160

<210> 510
<211> 944
<212> DNA
<213> Homo sapiens

<400> 510
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tgtccaggtc cctgagcgtg acagcgtctc ctcagtgtcc agtgctacgt cgagcagcag 120
ctctgcacac agcgtggact cggaggacat gtacgcagac ytggctagcc ccgtgtcctc 180
agccagctct cggtccccgg ccccagccca gaccaggaag gagaaaggaa aatctaagaa 240
agaagacggt gttaaagagg aaaagcggaa aagggattcg tccacacaac cacccaaatc 300
tgcaaaacct ccagcagggg ggaagtcctc ccagcagccc tcgacacccc agcaggcacc 360
ccccgggcag ccccagcagg gcacatttgt ggcccacaag gagatcaagt tgacactgtt 420
gaataaggcg gctgataaag gaagcaggaa gcgctatgaa ccatcagaca aggacaggca 480
gagccctcct ccagccaagc ggcccaacac atccccagac cgaggttctc gggaccggaa 540
gtcaggtkgg agactgggct ccccgaagcc agagcggcag agaggccaga actccaaagc 600
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ggtcacgagc gtgcccggca aagcctcgga tcccggcgcc gccagcacca aatcagggaa 720
ggccagcacg ctgtctcggc gggaggagct gctgaaacag ctgaaggccg tggaggatgc 780
tattgcacgc aagcgggcca agatccccgg gaaagcatag gccgtgcccc gaccggactg 840
gacgcatttt tatacatagg gtaagcgcag ccattttgga ttttgcagtt aatgtcttat 900
tttggctgtg attcttttta aaaagtaaaa aagaaaaaaa agtt 944

<210> 511
<211> 517
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (449)
<223> n equals a,t,g, or c

<400> 511
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tcctttcctt ctgccacggc gggatcgggc actcacccag ttgcaagtgc gagcactatg 120
gagtagcgca gggtctcgag ctgtggccgt ggacttaggc aacaggaaat tagaaatatc 180
ttctggaaag ctggccagat ttgcagatgg ctctgctgta gtacagtcag gtgacactgc 240
agtaatggtc acagcggtca gtaaaacaaa accttcccct tcccagttta tgcctttggt 300
ggttgactac agacaaaaag ctgctgcagc aggtagaatt cccacaaact atctgagaag 360
agagrttggt acttctgata aagaaattct aacaagtcga ataatagatc gttcaattag 420
accgctyttt cmagctggct acttctatna tacacaggtt ctgtgtaatc tgttagcagt 480
agatggtgta aattgagcct gatgtcctag gaattaa 517

<210> 512
<211> 3651
<212> DNA
<213> Homo sapiens

<220>

gttccccaag aagaactgga aaatgccagc ctagtgttta cagttttcgg ccacaacatg 480
aagagcagca atgacttcat cgggaggatc gtcattggcc agtactcttc aggcccctct 540
gagaccaacc actggaggcg catgctcaac acgcaccgca cagccgtgga gcagtggcat 600
agcctgaggt cccgagctga gtgtgaccgc gtgtctcctg cctccctgga ggtgacctga 660
gggctgcagg gaaggcagct ttcatttgtt taaaaaaaaa aaaaaaaaaa gacggaaaaa 720
aatgtntcac atactattac atccacacct gcatacacac tcgcaacatg tntacacacg 780
tccacacaca cagacacaca gataccccaa atcctctcag aactgagagg aagctgacta 840
ttgatcacaa aatggccgcc ctcagtgagt gaggcctagg aactttccag aagccccatc 900
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aatactcctg ccccaaaatg cactttcaac cctcaggcca gagaaaggac ctcccaaagg 1020
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gtaaatgtga taactagatt atgggccatt tggagaaacc aaatggcaac caaaactatt 1260
ccagtgtcag aagcctttcc tggcttaaca gaattgttct tgtgttagct catcccaggg 1320
aacgccctgt gggtatg 1337

<210> 509
<211> 731
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (10)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (33)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (720)
<223> n equals a,t,g, or c

<400> 509
aaggtgttcn ccttgtgagt taacaagtaa agnagatcat tgttaattac tattttgtat 60
gaattttgct aaagttaact gtaaagaaac acctgctgac ttgcagttta aggggaatct 120
attctcccca tttccaaacc atgatatgaa tgggcgctga catgtggaga gaatagataa 180
tttgtgtgtt tgcaatgtgt gttttagata aataggattg ggtatttaaa ttagcatttg 240
tgaatttaat agcattaaga ttaccttcaa atgaaaaaaa atctcaaaat ttctatttgg 300
tttttgtgca ttttctttta aaatgtaatc atatgatttt agtgtgttag acttgctgag 360
tcctagctgt gtttagaaca tctctattct acatttacct tggtcaaatt tgaactgctg 420
ccataggttt tgggtgtaaa gaatgtttac tgccctccat ttaaattctg aaaagggatg 480
gtggatgttt tccctctcct acgttagaaa ccattcttaa aaacttttga aaatatagaa 540
ccattaagcc tgctatatct gagcaaatta atgggtacct tttttttctt atttaaagca 600
caagaggccc ataaatcttg agttacttta aattcttttt tttgatacaa gttttcagag 660
caagagaata aaaatcatgt gttattaaac ccctaaaaaa aaaaaaaaaa acccgggggn 720
cttcttgggg g 731

agaccctcga ggattcggtc atattggaat tgctgttcct gatgtataca gtgcttgtaa 540
aaggtttgaa gaactgggag tcaaatttgt gaagaaacct gatgatggta aaatgaaagg 600
cctggcattt attcaagatc ctgatggcta ctggattgaa attttgaatc ctaacaaaat 660
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caaatagcaa tacttataga ctgaaataaa atgaaacttc aaataaraaa aaaaaaaaaa 2040
aactcgagac tagttctcc 2059

<210> 508
<211> 1337
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (726)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (772)
<223> n equals a,t,g, or c

<400> 508
tttgaggagc gctacacctt cgagatcccc ttcctggagg cccagaggag gaccctgctc 60
ctgaccgtgg tggattttga taagttctcc cgccactgtg tcattgggaa agtttctgtg 120
cctttgtgtg aagttgacct ggtcaagggc gggcactggt ggaaggcgct gattcccagt 180
tctcagaatg aagtggagct gggggagctg cttctgtcac tgaattatct cccaagtgct 240
ggcagactga atgttgatgt cattcgagcc aagcaacttc ttcagacaga tgtgagccaa 300
ggttcagacc cctttgtgaa aatccagctg gtgcatggac tcaaacttgt gaaaaccaag 360
aagacgtcct tcttaagggg cacaattgat cctttctaca atgaatcctt cagcttcaaa 420

<222> (359)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (360)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (361)
<223> n equals a,t,g, or c

<400> 506
cagccgccgc agactttctg gcaggcgctg caactgtgtt acttcatcca gttgattttg 60
cagatcgaat ctaacggtca ctcagtatcg tttggtcgta tggaccagta tctctacccg 120
tactatcgcc gcgacgttga actcaaccag acgctggatc gcgaacacgc catcgagatg 180
tgcatagctg ctggctgaaa ctgctggaag tgaacaagat ccgytccggc tcacactcaa 240
aagcctctgc gggaagtccg ccatgttctt cgagatattc ggtacccaat tcgccctata 300
gtgagtcgta ttacaattca ctggccgtcg ttttacaacg tcgtgactgg gaaaacgann 360
nagga 365

<210> 507
<211> 2059
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (6)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (8)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (18)
<223> n equals a,t,g, or c

<400> 507
gtggtnangc tccagaanta gtggatccgg aggctgcaga atggcccgag agggccgagg 60
cgtagtgtgg gtgactcctc cgttccttgg gtcccgtcgt ctgtgatact gcagygcagc 120
catggcagaa ccgcagcccc cgtccggcgg cctcacggac gaggccgccc tcagttgctg 180
ctccgacgcg gaccccagta ccaaggattt tctattgcag cagaccatgc tacgagtgaa 240
ggatcctaag aagtcactgg atttttatac tagagttctt ggaatgacgc taatccaaaa 300
atgtgatttt cccattatga agttttcact ctacttcttg gcttatgagg ataaaaatga 360
catccctaaa gaaaaagatg aaaaaatagc ctgggcgctc tccagaaaag ctacacttga 420
gctgacacac aattggggca ctgaagatga tgmgacccag agttaccaca atggcaattc 480

cgggagttgg ctcgcttaaa tgggaccctt cgggaagacg ataacaggat cttaagaccc 1080
tggcagagct cagagacccg cagcattacc aacaccacag tgtgtaccaa gtgtggaggg 1140
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actmtgggcm ccatggccct cctccaatgg atcagtacct gggaagtacg cctgtgggct 2040
ctggggtcta tcgcctgcat caaggaaaag gtatgatgcc gccaccacct atgggcatga 2100
tgtngccgcc gccgccgcct tcccagtggg ggcctgggga aatgtgcntg gaaggcttga 2160
ttcagcgggg ccgggggttg gcggcggccg ggccgn 2196

<210> 505
<211> 949
<212> DNA
<213> Homo sapiens

<400> 505
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ctgccgccag ccagctaccc acctcctgcc gtccccctg gaggacagcc tcctgtgccc 120
ccgcccattc cccacccgg catgcctcca gttgggggc tggggcgggc agcctggcat 180
gagataacgt gagccttttt tccctctttg ttttttaac aagattttct aatcgacttg 240
cagagtagtt gaagtgggta agcagcaggg taccttgtat aatgcacgac agttgcagta 300
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gggacaacca gctttcagag tagcctcatc agtgcccttg cagtctgact gtgtacactt 420
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cagccatatt ggctcaataa atagcttcgg taaggagtta atttccttct agaaatcagt 540
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gtcattttca ttcggtgaca ttctctccca tgacacccag aaggggcaga agaaccacat 660
ttttcattta tagatgtttg catcctttgt attaaaatta ttttgaaggg gttgcctcat 720
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atgtttacat ctctttgcaa attcctgtac atagagatat attttttaag tgtgaatgta 840
acaacatact gtgaattcca tcttggttac aaatgagact ccttcagtca gttatccaaa 900
taaaagcagt tctgaaacta aaaaaaaaa aaaaaaaaa aaaaaaaa 949

<210> 506
<211> 365
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature

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gaagacgcac ctgcgggaca tgatcatcct acccgagatg gtgggcagca tggtgggcgt 420
ctacaacggc aagaccttca accaggtgga gatcaagccc gagatgatcg gccactacct 480
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ccactcctcc cgcttcatcc ctctcaagta atggctcagc taataaaggc gcacatgact 600
ccaaaaaaaa aaaaaaaaaa angggnsggc ccggtcttaa aggatccnaa gcywacktac 660
sctgctgcaa ctctactctc tcc 683

<210> 504
<211> 2196
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (18)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2104)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2148)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2196)
<223> n equals a,t,g, or c

<400> 504
tcgacccacg cgtccggnag ttaacctttt gcctaaactt ggagagctca tacatactat 60
gtgttagggg tacagaagct tttcctcata gggcatgagc tctccaagag ttaacctttt 120
gcctaaactt ggggtttctg tggttcataa agttgggata trtwtttttt ttcaaatgga 180
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ccaaagattt tccccaaaga atagacattt tttcctctca tcacttctag atgcaaaatc 300
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tccccattcc acacgatctt gagtagcaca cgttatgktc gkttcctccg aagaktgttg 420
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gagaagtcgg tgcagawtag taaacgggag tctgtttccc acaggtcccc ttcccctgag 540
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ctggaagagg agcggcacaa cctcatcaca gagatggttg cactcaatcc ggatttcaag 660
ccacctgcag attacaaacc tccagcaaca cgtgtgagtg ataaagtcat gattccacaa 720
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<210> 503
<211> 683
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (622)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (626)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (648)
<223> n equals a,t,g, or c

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tttactag 848

<210> 502
<211> 3192
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (3085)
<223> n equals a,t,g, or c

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<210> 500
<211> 1624
<212> DNA
<213> Homo sapiens

<400> 500
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aaaa 1624

<210> 501
<211> 848
<212> DNA
<213> Homo sapiens

<400> 501
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<220>
<221> misc feature
<222> (1642)
<223> n equals a,t,g, or c

<400> 499
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<210> 498
<211> 1904
<212> DNA
<213> Homo sapiens

<400> 498
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<210> 499
<211> 2871
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (267)
<223> n equals a,t,g, or c

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agagactgag attgg 975

<210> 497
<211> 2075
<212> DNA
<213> Homo sapiens

<400> 497
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gggggggg 1268

<210> 495
<211> 384
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (360)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (382)
<223> n equals a,t,g, or c

<400> 495
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ccctaggtgt tgaggaattc ccagttcaca atctcctgag cagtgcgtgg catctacaga 180
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atttttaatt aatttccttt gnga 384

<210> 496
<211> 975
<212> DNA
<213> Homo sapiens

<400> 496
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<211> 1451
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1307)
<223> n equals a,t,g, or c

<400> 493
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<210> 494
<211> 1268
<212> DNA
<213> Homo sapiens

<400> 494
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<223> n equals a,t,g, or c

<400> 492

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gatgagttca ttgagagtat ttcccttctg ccggaacctg agaagaccct gcacactgaa 180
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<210> 493

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cattcctttt cctgtgaaat atgtgagtga taattaaaca ctttagacct gaaaaaaaa 660
aaaaaaaaa aaaaaaaaa aa 682

<210> 491
<211> 1859
<212> DNA
<213> Homo sapiens

<400> 491
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aaaaaatgaa agacgctctg tttaaaacaa tgatgacagc agtacttaat atgtatttcg 180
aggtgaactt atatagattg agagaggctg catttggcag actgatgtat aggaagaccc 240
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<210> 492
<211> 2709
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (2160)

<210> 489
<211> 285
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (21)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (242)
<223> n equals a,t,g, or c

<400> 489
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tcagcctcct gaagacactg aacaccgcag tgttttccag tcagcaacgc aacaaaatca 180
gtttaagtga taatgacaat aacaaacaat ccatagcatc cacagcattc actgcttact 240
gnaaaactta ctatgtccca ggcacaagca ctgactttaa tcttg 285

<210> 490
<211> 682
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (57)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (62)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (80)
<223> n equals a,t,g, or c

<400> 490
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<210> 488
<211> 1200
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (285)
<223> n equals a,t,g, or c

<400> 488
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acagcccagg gttatttata ctctcccagc ccacctcaac ccagaggcta ctcttgactt 2520
agacctatac tgaaagatct ctgtcacatc caactggaaa ttccaggaac ca 2572

<210> 487
<211> 1451
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1256)
<223> n equals a,t,g, or c

<400> 487
tgtttttatt ttatattatt attatagaag gtggtaccat tatcaattat gtgaagggac 60
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ccagactgca gcctggccca tggctgtttt cccaaggatc agttcctgga gggaagggct 180
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cacttctgca gtccacgctg aacatgggaa acaacctgaa aagcaggcag gcctcccggt 360
cagggagcct ctgctgtgct ggcttcccat gaccacctcc tcctgctgaa atattactgc 420

ttttgtgggt tgcaaatgaa ctcaattgcc acaagtttta aactggtgta aatcaagctt 1500
gacttaatgt gattgttact gttatatcca gcctatactg ctagcagctg ctcatactgc 1560
agtcaattac tggaagcgga tatatttcct atgcaaaaac tgtttaaaca ataaaatgag 1620
ctatgctaca gaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaa 1664

<210> 485
<211> 969
<212> DNA
<213> Homo sapiens

<400> 485
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ggtgaccgag agccggggcc cgctgccagg agcctgggcg agggccaggc tggctttgct 180
acagctgacc actccggtca ggagagagag actgagaagg ctatggatcg actagcccgt 240
ggaacacaga gcattcctaa tgacagtcct gcccggggtg agggcaccca ttctgaagag 300
gaaggctttg ccatggatga ggaggactct gatggagaac tgaatacctg ggagctgtca 360
gaagggacaa actgtccacc caaggaacag cctggcgatc tttttaatga ggactgggac 420
tcggagttga aagcagatca agggaatcca tatgatgctg acgacatcca ggagagcatt 480
tctcaagagc ttaaaccttg ggtgtgctgt gccccacaag gagacatgat ctatgacccc 540
agctggcacc atccgcctcc actgataccc tattattcca agatggtctt tgaaacagga 600
cagtttgacg atgctgaaga ttgagtgtgg agctttctgc cttgtaggtg ggcgggcctc 660
cacgtcaaga tctcttttcc tgtcttggag gtgaaaagtc atatctgaga aaatgtttgc 720
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cccgtcattc tcgccagtct gttgttgttc ttaatgggct cctccttgaa atgtgtgtgt 840
gtttgtgtca agaggagttg tgttctttgt aaataaaggt taaaaagaga aaaaaaaaaa 900
aaaaaaaaat ttttgcccca aagggggggcg gttaaaagat aacggcggcg gggatttgtg 960
agaatatgc 969

<210> 486
<211> 2572
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (823)
<223> n equals a,t,g, or c

<400> 486
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cggcggcagc agcagcagca gcggaggcac cggtggcagc agcagcatca ccagcaacaa 120
caacaamaaa aaatcctcat caaatcctca cctaagcttt cagtgtatcc agatccacat 180
cttcactcaa gccaggagag ggaaagagga aagggggggca ggaaaaaaaa aaaacccaac 240
aacttagcgg aaacttctca gagaatgctc caaaactcag cagtgcttct ggtgctggtg 300
atcagtgctt ctgcaaccca tgaggcggag cagaatgact ctgtgagccc caggaaatcc 360
cgagtggcgg ctcaaaactc agctgaagtg gttcgttgcc tcaacagtgc tctacaggtc 420
ggctgcgggg cttttgcatg cctggaaaac tccacctgtg acacagatgg gatgtatgac 480
atctgtaaat ccttcttgta cagcgctgct aaatttgaca ctcagggaaa agcattcgtc 540
aaagagagct taaaatgcat cgccaacggg gtcacctcca aggtcttcct cgccattcgg 600
aggtgctcca ctttccaaag gatgattgct gaggtgcagg aagagtgcta cagcaagctg 660

atggacatag caatgggctg gaagggtgcc caggccatgc agtttggaca acctttggtt 780
tttgacatgg cttacgaaaa ttatatgaaa cgaaaagaat tgcagaatac tgtttcccag 840
cttttagaaa gtgaaggatg gaacagaaga aatgttgatc ctttccatat ttatttctgc 900
aatctaaaaa tagatggtgc tttgccagag agttagttaa acggtatcaa gaaaaatggg 960
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ttcccccata gctttccccg tgcatctctt tgtctgtatg ttttgtaata tcttttacag 1800
taaactggta aatgtgtttc cttcaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1860
aa 1862

<210> 484
<211> 1664
<212> DNA
<213> Homo sapiens

<400> 484
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tttctaattc cctaaaattg tgtgggtgga gtggagccct gcagttgggg ggtaacatgg 180
accactgatt ttgccctttg accctgcaca atgacctttg catcagccaa actcattgcc 240
atgacaactc tttgtactgt gtccgtgcca cagatctgtt ggtcacattg ttaatagtaa 300
aggggacaag ttggagacgg tcaattttta catttttgt tgcaattttt tcttcaatgg 360
ttgtaagtag tttttttttt ttttaataat aaaagggttc actagttaat actctagaaa 420
tatctgtgtg ttgcaattca aatgtatgtt gagattgtga aaagcgcttc agtgccacta 480
gcttaccggt acactagact aagcccttga tgacttattg catgatacag taccaggaac 540
aacaggtggc ctaaatacat gaaaagcagt gtaagctagt gacactaaag ccagtcttgt 600
attactgtat ttttgacaga atggttttga aaactgtgct acagggactg atgtggcaaa 660
tatatctctt tatgcagaag gaagtctttt tttttctttt tttttttttt aagaagtatg 720
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tattatacga cagttactta atttctagag ttcaggcctc tgggatcaac cccagactgg 1380
gccagaatgt tagtgaaggt tttattgtgc ccggttggag gataacgttc tttgggtact 1440

<210> 482
<211> 1248
<212> DNA
<213> Homo sapiens

<400> 482
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ctctgcatct ttaccaaaag aatgcacgct tgaagaatgt ggaattcctg cttgtaaacc 120
gtatacactg tgggacgaga caccaatgtc ttggttacat caaaagaagg ctagcaatgt 180
gtgccagaag actcgggagg accagggaag cagtgaaaat gatgagagat ttaatgaagg 240
agttccccct tctgagtatg ttcaatatcc atgaaaacct tttagaagcc cttctggaac 300
tacaagcata tgctgatgtt caggcagtct tagcaaagta tgatgatata agcttaccaa 360
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gcatgacttt gaaaaaggga agccattccg agattttaaa atgttcatgg actattccat 1140
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<210> 483
<211> 1862
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (124)
<223> n equals a,t,g, or c

<400> 483
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cggatccctg ggcgtccgta cgtcggagtc cttcgtcctc cagggtccct gttctttgcg 120
ccancgggaa ccactatctc tgcactcctg gggttttgtt acatggctgc tttcctcaaa 180
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ggcttgccta taaactgtat ctgtgaaaga ctgaatatca taggtgagat caacactgat 60
acagtttata ggcaagcaat aaacagcaag atgtttgagg tggatatgaa aattgctgca 120
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ccgaaagtat ttttataagt tactggtttt cacccacgct tttgtgggag agaaaatcat 1020
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<210> 480
<211> 684
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (5)
<223> n equals a,t,g, or c

<400> 480
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gcggaacgcc ggaaaccgca gatccacgga ggtcaggscc gcggagagct gtagttcccc 120
ggaaccggaa gtgatggcgg acytccggaa accgtagatt ccgggcggtc ggagccgccg 180
ggagctgtag ttctcccgcg gctcagagaa gtaggcagag agcggacctg gcggccgggc 240
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ccccactcgc tccctctcct ttcc 684

<210> 481
<211> 2995
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1760)
<223> n equals a,t,g, or c

<400> 481

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acttggaccc caaccttgnn gctttctggc ttggaagg 1418

<210> 478
<211> 1237
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1232)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1236)
<223> n equals a,t,g, or c

<400> 478
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<211> 1098
<212> DNA
<213> Homo sapiens

<400> 479
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<222> (1127)
<223> n equals a,t,g, or c

<220>
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<220>
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<220>
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<400> 477
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<210> 476
<211> 691
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (689)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (691)
<223> n equals a,t,g, or c

<400> 476
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<210> 477
<211> 1418
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (93)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (396)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (432)
<223> n equals a,t,g, or c

<220>
<221> misc feature

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<210> 475
<211> 4231
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (4136)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (4167)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (4184)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (4223)
<223> n equals a,t,g, or c

<400> 475
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<210> 474
<211> 1258
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (36)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (528)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (726)
<223> n equals a,t,g, or c

<400> 474
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<210> 472
<211> 467
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (455)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (466)
<223> n equals a,t,g, or c

<400> 472
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<210> 473
<211> 1840
<212> DNA
<213> Homo sapiens

<400> 473
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<220>
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<222> (461)
<223> n equals a,t,g, or c

<400> 471
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ggttgagttg ttaacagtgt tctttgaaag aatctctaaa aggcttataa atgtttgaaa 2460
tatcacacaa aggctgattt ctaaaatata tatatattaa aacaataaag tatttatttt 2520
gcctaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaa 2557

<211> 520
<212> DNA
<213> Homo sapiens

<400> 469
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caagccctgt agtatctctt ccatactggg caataatctc cttaggtggg cttttatttt 480
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<210> 470
<211> 879
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (472)
<223> n equals a,t,g, or c

<400> 470
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gaaaacccgg cgccgtcatc gagagctttg tgaatcacgc cccgggggtc ttctcaggga 180
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caaggagagc gggcaattcc cgcagtcaag acaggttgc 879

<210> 471
<211> 2557
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (121)
<223> n equals a,t,g, or c

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tccctgggcg tgcagagggt ctacaccctg caggatttgc tgtatcagag cgactgcgtc 900
tccttgcact gcaatctcaa cgaacataac caccacctca tcaatgactt taccataaag 960
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<210> 469

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ttgctctaac aaataaaatg ttatctaaat gaaaaaa 2197

<210> 468
<211> 3611
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (3574)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (3581)
<223> n equals a,t,g, or c

<400> 468
ctggttctgt tgttactcct gccgactgca gtgctgttcc gtgagcttct tgaatgacat 60
cgtacagtat ctccgacgca cagggttcat agtggcgtca tgcacgcaga ctcctgcaag 120
ttcccctaag ttcttagagg actgctttgc cttttgatct gagagttgca aagttccata 180
aagaatggcc cttgtggata agcacaaagt caagagacag cgattggaca gaatttgtga 240
aggtatccgc ccccagatca tgaacggccc cctgcacccc cgccccctgg tggcgctgct 300
ggacggccgc gactgcactg tggagatgcc catcctgaag gacctggcca ctgtggcctt 360
ctgtgacgcg cagtcgacgc aggaaatcca cgagaaggtt ctaaacgaag ccgtgggcgc 420
catgatgtac cacaccatca ccctcaccag ggaggacctg gagaagttca aggccctgag 480
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cggaattgcc gtgtgcaaca tcccgtctgc agccgtggaa gagacagcgg actctaccat 600
ctgccacatc ctcaacctgt accggagaac acgtggctgt accaggcact gcgggaaggc 660
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<221> misc feature
<222> (1099)
<223> n equals a,t,g, or c

<400> 466
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ggacaccggc ggagcctccc cgcccccgcg gaagaaaccc cgccagcaac aatagcaaca 120
gcctgaatgt caataacggg gttcccggcg gggcggccgc cgcatcctca gccaccgtcg 180
cagctgcctc cgccaccacc gccgcctcct cttccttggc caccccagaa ctgggcagca 240
gcctcaagaa gaagaagcgg ctctcccagt cagatgagga tgtcattagg ctaataggac 300
agcacttgaa tggcttaggg ctcaaccaga ctgttgatct cctcatgcaa gagtcaggat 360
gtcgtttaga acatccttct gctaccaaat tccgaaatca tgtcatggaa ggagactggg 420
ataaggcaga aaatgacctg aatgaactaa agcctttagt gcattctcct catgctattg 480
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gaagcattgt tatgaatttt ggttcctgtt aattcctcct aatgaatggc acttaaactt 1020
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<210> 467
<211> 2197
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (846)
<223> n equals a,t,g, or c

<400> 467
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ccgccaatga aacgcctccc gctcctagtg gtttttttcca ctttgttgaa ttgttcctat 120
actcaaaatt gcaccaagac accttgtctc ccaaatgcaa aatgtgaaat acgcaatgga 180
attgaagcct gctattgcaa catgggattt tcaggaaatg gtgtcacaat ttgtgaagat 240
gataatgaat gtggaaattt aactcagtcc tgtggcgaaa atgctaattg cactaacaca 300
gaaggaagtt attattgtat gtgtgtacct ggcttcagat ccagcagtaa ccaagacagg 360
tttatcacta atgatggrac cgtctgtata gaaaatgtgr atgcaaactg ccatttagat 420
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cctgtggctt tgctacaaga agtctataga aattctgtga cagatctttc accaacagat 540
ataattacat atatagaaat attagctgaa tcatcttcat tactaggtta caagaacaac 600
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<210> 465
<211> 589
<212> DNA
<213> Homo sapiens

<400> 465
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cccacgctaa ctttgaaggt gatacttacc tcacctctaa ttagggacga attggagaag 480
aaggatggag aaaatgtttc gatgaaagat cctccggact tattggayag gcagaaatgc 540
ctgaacgcct tggcgtctct tcgacatgcc aaatggtttc aggcaaggg 589

<210> 466
<211> 1107
<212> DNA
<213> Homo sapiens

<220>

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1254)
<223> n equals a,t,g, or c

<400> 463
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catgttcccg ctgttgctcc tccttctgcc cttccttctg tatatggctg cgccccaaat 120
caggaaaatg ctgtccagtg gggtgtgtac atcaactgtt cagcttcctg ggaaagtagt 180
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gatccagacc acgacaggga accagcaggt gttggtgcgg aaactggacc tgtctgatac 360
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atcaacaatg caggagtgat gatgtgtccg tactcgaaga cagcagatgg ctttgagatg 480
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cagtgccatc cagtctttac 1280

<210> 464
<211> 2431
<212> DNA
<213> Homo sapiens

<400> 464
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<210> 463
<211> 1280
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1016)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1137)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1242)

<220>
<221> misc feature
<222> (431)
<223> n equals a,t,g, or c

<400> 460
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aatcataatt tagttcttaa aactatgtgg cttgaagtgg caagtagcaa gtactgattt 180
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caggattttt acctcctata actccaccag aaaagttttt tctttcccag ctgatgctgg 300
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<210> 461
<211> 654
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (138)
<223> n equals a,t,g, or c

<400> 461
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<210> 462
<211> 2245
<212> DNA
<213> Homo sapiens

<400> 462
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gcacccgcct ggcccgccag acccaccctg ccaacatcaa gttgttcctt ctgctccgga 180
gacccctggg gtgcggccct ggccccctcc acccctgctg ggccagagcg ggtgggcagt 240
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caaccaatca aacaacaaaa acaatccaaa gaaagagact tggacatagg catcaaggaa 420
tcatttcact ttataattta atagaacact ggtgtatcat tcattaattc tgaaagtgag 480
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agggttcata acgttgacat tctgttggtg caatcataat ctcctgtttt gttttagtcc 660
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<210> 459
<211> 1283
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (86)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (145)
<223> n equals a,t,g, or c

<400> 459
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actgcatgct ggtaagcaac cgcgtnctcc tggtggggga gcacgctggc catgctgcag 120
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<210> 460
<211> 435
<212> DNA
<213> Homo sapiens

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ctgtagaata tggaaaatag tatttgtctt acctttgcta aatgtttgca atttctaagt 2160
aaacctttta tctcctaaaa aaaaaaaaa 2189

<210> 457
<211> 1399
<212> DNA
<213> Homo sapiens

<400> 457
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<210> 458
<211> 709
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (57)
<223> n equals a,t,g, or c

<400> 458
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agtagctttt cacttaattg actagcatgt atgggtttct ttacccaggt ccacaattca 120
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<210> 456
<211> 2189
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (17)
<223> n equals a,t,g, or c

<400> 456
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<210> 455
<211> 1538
<212> DNA
<213> Homo sapiens

<400> 455
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<222> (517)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (540)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (567)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (593)
<223> n equals a,t,g, or c

<400> 453
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gggattggaa tatggtttgg atgggggaca gattccnggt taattttcca ttcctgggan 540
cctagaaggg gactccatgg atctttnggg ggatagccag aattgtttgg ccncaatccc 600
cagt 604

<210> 454
<211> 1917
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1256)
<223> n equals a,t,g, or c

<400> 454
ttctttttaa aatgttaatg cccgttgtct ttcctgggct gtttgctagc ggaaggatgc 60
cagggaagcc agcaggagct aggagagagt ccgtggatct cgaaagaaat atgggagaca 120
gatgcccggc ggtgcgtctg gagatgggga cggcgggagt tgagttgtgg cagtagtyga 180
gttgtaattt gtgggcggag gcagkaggag actccccacc cttcacccct gccccactct 240
gtccccagtt ccgccatttg tgaggccaga ggtttccgga ctgttggcct cgcaggcagc 300
cgtctcccgc cccagggcaa tcccccagtc cctcccgcct ccacgagagc ctggagctct 360
cagcctcgcc cggggctcca ctctctcctc cggctccctg ggctgttttg ctctaacgat 420
cttgccagat ccctccctct gtagacaacc accaacctct gtttgctgtt gaattctctc 480
ctcacattac ccaggtctgc tcaagacatg attttggttt tggtttctga gggttctagt 540

ctataggagc agtggactgc ttgctggtcg cttacatcac tttactccat aagcgcttca 1740
gtggggttat cctagtggct cttgtggaag tgtgtcttag ttacatcaag atgttgaaaa 1800
tctacccaaa atgcagacag atactaaaaa cttctgttca gtaagaatca tgtcttactg 1860
atctaaccct aaatccaact catttatact tttattttta gttcagttta aaatgttgat 1920
accttccctc ccaggctcct taccttggtc ttttccctgt tcatctccca acatgctgtg 1980
ctccatagct ggtaggagag ggaaggcaaa atctttctta gttttctttg tcttggccat 2040
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tctgtacagg tttcatgcta gagctaatgg gagatgtggc cacactgact tccattttaa 2160
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cctgctcctc agtcttgtaa atgtatcttg agaggtagga gcagagccac tatctccatt 2280
gaagctgaaa tggtagacct gtaattgtgg gaaaactata aactctcttg ttacagcccc 2340
gccacccctt gctgtgtgta tatatataat actttgtcct tcatatgtga aagatccagt 2400
gttggaattc tttggtgtaa ataaacgttt ggttttattt atcaaaaaaa aaaaaaaaaa 2460
aaaaaaaaaa aaaaaaaaaa aaaac 2485

<210> 452
<211> 963
<212> DNA
<213> Homo sapiens

<400> 452
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ggccgggact ctgaactatg gcggctagtg atacagagcg agatggacta gccccagaaa 180
agacatcacc agatagagat aagaaaaaag agcagtcaga agtatctgtt tctcctagag 240
cttcaaaaca tcattattca agatcacgat caaggtcaag agaaagaaaa cgaaagtcag 300
ataatgaagg aagaaaacac aggagccgga gcagaagcaa agagggaaga agacatgaat 360
ccaaagataa atcctctaag aaacataagt ctgaggaaca taatgacaaa gaacattctt 420
ctgataaagg aagagagcga ctaaattcat ctgaaaatgg tgaggacagg cacaaacgca 480
aagaaagaaa gtcatcaaga ggcagaagtc actcaagatc taggtctcgt gaaagacgcc 540
atcgtagtag aagcagggag cggaagaagt ctcgatccag gagtagggag cggaagaaat 600
cgagatccag aagcagagag aggaagaaat cgagatccag aagcagggaa agaaaacggc 660
ggatcaggtc tcgttcccgc tcaagatcaa gacacaggca taggactaga agcaggagta 720
ggacaaggag taggagtcga gatagaaaga agagaattga aaagccgaga agatttagca 780
gaagtttaag ccggactcca agtccacctc ccttcagagg cagaaacaca gcaatggatg 840
cacaggaagc tttagctaga agagaaagac cgggggtctc ccttattgtt tgcccaggct 900
gggtaacaca gtgtaacctg atgttgcttc ccctgggaac ccagcctgac agaaaactgc 960
agc 963

<210> 453
<211> 604
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (12)
<223> n equals a,t,g, or c

<220>
<221> misc feature

tttacatctg acatcctttg gcctaacaac atctattatt atagtgctca gcagtgtggg 1860
cattgaagag gcgcagaatg ctttgaaaga aactaatcag aatcttggaa catcatgatc 1920
atgccattct taagtaaatc aactattttc aacactgaag aaaaatgaaa cattatttag 1980
aaaacaatga gattacaagt tccaaactnc agccaggaat gtgggctcac acctgtnaat 2040
cccagcactt tgggacacct aggtgggagc atcgcttgaa gccaggagtt caagaccagc 2100
ttgggcaacg tagtgaggac ccctatctct acaaaaaata aaaaaattag ctgggtgtga 2160
tggcacacac ctgttgtccc agctactcaa gaagctgaga tgggaggatc ctgagctcag 2220
gaggtcaagg ctgcagtgag ccgagaatgt gccactgcac tgcagctggg gtgacagtgc 2280
aagaccctgt cttcaaacca aaccaaacca cacacacaca aacacacata cacacacaca 2340
canacgangg tccaaatggt agcagggatc caaangggac acagtangta gggtcaaact 2400
gggcagttac agtgtacagn ctttgaca 2428

<210> 451
<211> 2485
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (222)
<223> n equals a,t,g, or c

<400> 451
ggcacgagtg gcggccgagc cgtgtgtctc ctcctccatc gccgccatat tgtctgtgtg 60
agcagagggg agagcggccg ccgccgctgc cgcttccacc acagaaatca agatgactac 120
cagctggttc gaaaattagg ccgaggtaaa tacagtgaag tatttgaagc catcaacatc 180
acaaataatg aaaaagttgt tgttaaaatt ctcaagccag tnaaaaaaga agaaaattaa 240
gcgtgaaata aagattttgg agaatttgag aggaggtccc aacatcatca cactggcaga 300
cattgtaaaa gaccctgtgt cacgaacccc cgccttggtt tttgaacacg taaacaacac 360
agacttcaag caattgtacc agacgttaac agactatgat attcgatttt acatgtatga 420
gattctgaag gccctggatt attgtcacag catgggaatt atgcacagag atgtcaagcc 480
ccataatgtc atgattgatc atgagcacag aaagctacga ctaatagact ggggtttggc 540
tgagttttat catcctggcc aagaatataa tgtccgagtt gcttcccgat acttcaaagg 600
tcctgagcta cttgtagact atcagatgta cgattatagt ttggatatgt ggagtttggg 660
ttgtatgctg gcaagtatga tctttcggaa ggagccattt ttccatggac atgacaatta 720
tgatcagttg gtgaggatag ccaaggttct ggggacagaa gatttatatg actatattga 780
caaatacaac attgaattag atccacgttt caatgatatc ttgggcagac actctcgaaa 840
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tttcctggac aaactgctgc gatatgacca ccagtcacgg cttactgcaa gagaggcaat 960
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aacccettca ccccttggac ctctggcagg ctcaccagtg attgctgctg ccaacccccct 1140
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ttttcataac tcaggggatt ccctgaaaaa ttacctgcag gtggaatatt tcatggacaa 1440
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cctcaatccc ggctgctgca tttaggtgga gacttcttcc cattcccacc attgttcctc 1560
caccgtccca cactttaggg ggttggtatc tcgtgctctt ctccagagat tacaaaaatg 1620
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<220>
<221> misc feature
<222> (2348)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2375)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2387)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2420)
<223> n equals a,t,g, or c

<400> 450
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ggtttgaggc ctgctttctg ctcgcgccag cagagcacta cctgaggcag cgaggcgcag 120
cgagcctagc ctcccccgcgc cctgggcagt gtggccatgg agaatcaggt gttgacgccg 180
catgtctact gggctcagcg acaccgcgag ctatatctgc gcgtggagct gagtgacgta 240
cagaaccctg ccatcagcat cactgaaaac gtgctgcatt tcaaagctca aggacatggt 300
gccaaaggag acaatgtcta tgaatttcac ctggagttct tagaccttgt gaaaccagag 360
cctgtttaca aactgaccca gaggcaggta aacattacag tacagaagaa agtgagtcag 420
tggtgggaga gactcacaaa gcaggaaaag cgaccactgt ttttggctcc tgactttgat 480
cgttggctgg atgaatctga tgcggaaatg gagctcagag ctaaggaaga agagcgccta 540
aataaactcc gactggaaag cgaaggctct cctgaaactc ttacaaactt aaggaaagga 600
tacctgttta tgtataatct tgtgcaattc ttgggattct cctggatctt tgtcaacctg 660
actgtgcgat tctgtatctt gggaaaagag tccttttatg acacattcca tactgtggct 720
gacatgatgt atttctgcca gatgctggca gttgtggaaa ctatcaatgc agcaattgga 780
gtcactacgt caccggtgct gccttctctg atccagcttc ttggaagaaa ttttattttg 840
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cagatttatc ttataatgat atttttaggt ttatacataa attttcgtca cctttataaa 1200
cagcgcagac ggcgctatgg acaaaaaaar aaaaagatcc actaaaaaga aagatttaga 1260
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ccaaccctat ctcatgttca gtctgtctaa tacatgccag agattttttt ttcaaaaagt 1560
gctttatccc tacaatgtac tgacagttct tacagttgag atttgttctt ttcagctatt 1620
gcttgtgaaa aaaagcaaga ctatgtcact ctatagaagg ctgttaaagt gactcaggca 1680
ggaattaatt attctgtacc taaggggtta cttgtttaat gggatggcat tgactttttg 1740
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<211> 1177
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (298)
<223> n equals a,t,g, or c

<400> 449
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catttgggtt ggaataaaaa tgcattttta ttcacaaggc acagacagat aagaatatca 120
taagcaggga agtgtctcca aaggtcagga cttatgtttt tctgttgagt gctatatgtg 180
gaggttattg caagttccct gatatgagta tggtttcgct tgctacattg tgcctattaa 240
agtaaaattt tacacaagcc tcgcatttct aagattagtg ttcccgaatg aaatgttnaa 300
gaaaacatta aaagattatc tctttttaag atggaggaaa aaaagtgaac aaagctaatt 360
aatctataat gaaaattgca caaaataaca tttcttaaca aatttaatac aattttgtgt 420
tctttgttgc tagtggtata aaacgagatt tttttccctc atttttctca ttgtagatgt 480
catctctcac atttatatca gtgaggtttg aaattctgtg tagcagttac tcagcacata 540
tgagagggca gcgaatgaat gagatttgtc atgtgctaat aaaagctgaa tttttgtaat 600
ctaaaatgat gtattttcta ctattgctgt taatttgcat tgttaaaaat tcttaaagtt 660
taatatgtta tgttcagtca ttgaaagcga ccactcattt ttttyttaaa gttgatgcct 720
tttctgctgt gctagagtca gtattttgct tctggcagga gagctgcaaa ctgtgtatcc 780
tcaaacagat gcaaaaagta gtgctttgca aaacgtttgt tttctgttta tctcagatta 840
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ctactgacaa atgtctgaac tattgtcgtg cccttcaaaa ctggagtttt ctaaaataat 1080
cttattttta tacttgtatg ttccagcaat ttaagatata taccattgaa agggaaataa 1140
aacattttg tttatttgaa taaataatac tcccaaa 1177

<210> 450
<211> 2428
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (2009)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2037)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2343)
<223> n equals a,t,g, or c

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gaaccagctg tcgaagaagg aggcgtcgcg gcgggccctg atgggctcgc cccagctggt 1140
ggccgctgtc gtgcgtacca tgcagaatac cagcgacctg gacacagccc gctgcaccac 1200
cagcatcctg cacaacctct cccaccaccg ggagggggctg ctcgccatct tcaagtcggg 1260
tggcatccct gctctggtcc gcatgctcag ctcccctgtg gagtcggtcc tgttctatgc 1320
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ggccgacggg ctgcaaaaga tggtgcccct gctcaacaag aacaacccca agttcctggc 1440
catcaccacc gactgcctgc agctcctggc ctacggcaac caggagagca agctgatcat 1500
cctggccaat ggtgggcccc aggcctcgtg cagatcatgc gtaactacag ttatgaaaag 1560
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gaatctggcc ctgtgcccag ccaaccatgc cccgctgcag gaggcagcgg tcatcccccg 2160
cctcgtccaa ctgctggtga aggcccacca ggatgcccag cgccacgtag ctgcaggcac 2220
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cagcgatgtg ccccttgacc cgctggagat gcacatggac atggatggag actaccccat 2760
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aaaaaaaaaa aaaaaaaaaa aaa 3983
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<210> 449

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (67)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (227)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (328)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1010)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (3067)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (3255)
<223> n equals a,t,g, or c

<400> 448
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ttggtttttt ccttagtctt actgacagag ccttgtccaa tcaggaggaa gtaactttct 180
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actggcagtc cccggggcca atggcaagcg gataaacaga ggcggccgtg gaagaggact 300
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tcaggtctct tcgccttttg ttcggttact gagttgctgc cttggccaga gtccggagca 480
gccgccgccc gaccrcgccg agctcagttc gctgtccgcg ccggctccca ccccggcccg 540
accccgaccc ggcccggtca ggccccatac tcagtagcca cgatggaggt gatgaacctg 600
atggagcagc ctatcaaggt gactgagtgg cagcagacat acacctacga ctcgggtatc 660
cactcgggcg ccaacacctg cgtgccctcc gtcagcagca agggcatcat ggaggaggat 720
gaggcctgcg ggcgccagta cacgctcaag aaaaccacca cttacaccca gggggtgccc 780
cccagccaag gtgayctgga gtaccagatg tccacaacag ccagggccaa acgggtgcgg 840
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<220>
<221> misc feature
<222> (1)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (20)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (25)
<223> n equals a,t,g, or c

<400> 447
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ccgggcaaac tagacattgt aatgcataag atgcaggaaa aagtgcagag cattaactat 120
aacccttttg accagaaact ttatgtctat aacgatggtt accttctgaa ttatgatctt 180
tctgtcttgc agaagcccca gtaagctgtt taggagttag ggtgaaagag aaaatgtttg 240
ttgaaaaaat agtcttctcc acttacttag atatctgcag gggtgtctaa aagtgtgttc 300
attttgcagc aatgtttagg tgcatagttc taccacacta gagatctagg acatttgtct 360
tgatttggtg agttctcttg ggaatcatct gcctcttcag gcgcattttg caataaagtc 420
tgtctagggt gggattgtca gaggtctagg ggcactgtgg gcctagtgaa gcctactgtg 480
aggaggcttc actagaagcc ttaaattagg aattaaggaa cttaaaactc agtatggcgt 540
ctagggattc tttgtacagg aaatattgcc caatgactag tcctcatcca tgtagcacca 600
ctaattcttc catgcctgga agaaacctgg ggacttagtt aggtagatta atatctggag 660
ctcctcgagg gaccaaatct ccaacttttt tttcccctca ctagcacctg gaatgatgct 720
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agtagaatct tctacctcat aacttccttc caaaggcagc tcagaagatt agaaccagac 960
ttactaacca attccacccc ccaccaaccc ccttctactg cctactttaa aaaaattaat 1020
agttttctat ggaactgatc taagattaga aaaattaatt ttctttaatt tcattatgra 1080
cttttattta catgactcta agactataag aaaatctgat ggcagtgaca aagtgctagc 1140
atttattgtt atctaataaa gaccttggag catatgtgca acttatgagt gtatcagttg 1200
ttgcatgtaa tttttgcctt tgtttaagcc tggaacttgt aagaaaatga aaatttaatt 1260
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agtctttgtc tatttttcct ttgatgttca agtcctagtc tataggattg gcagtttaaa 1440
tgctttactc cccctttttaa aataaatgat taaaatgtgc tttgaaaaaa aaaaaaaaaa 1500
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa agggcggcc 1539

<210> 448
<211> 3983
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (60)

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tacctttat acctatgttc gattttgttt tgttttgttt tgttctggct ttgaggcttg 1800
ttttgttgtc tgtgtctgtc tgaataacct gcgtgtctaa aaccacgtga aatgtgaatg 1860
attattggca atattacctt gacagaatca tgggactttg agaagaggga ggacagaggc 1920
ctctgtcgca ctaacgctct cgtggttgct cgactgttgt atctgtgata cattatccga 1980
ctaaggactc tggctggca gggccttctg ccgggaaagc tagaaacact aggttcttcc 2040
tgtacatacg tgtatatatg tgaacagtga gatggccgtt tctgacttgt agagaaattt 2100
taataaacct ggtttcgtaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aag 2153

<210> 446
<211> 492
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (305)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (474)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (475)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (489)
<223> n equals a,t,g, or c

<400> 446
ggcacgagct ggccagctcc gagttctccc atgaagccgt caagacgcac attgacaccg 60
tcatcaatgc cctcaagacg gagcgggacg tcagcgtgcg gcagcgggcg gctgacctcc 120
yctacgccat gtgtgaccgg agcaatgcca agcagatcgt gtcggagatg ctgcggtacc 180
tggagacggc agactacgcc atccgcgagg agatcgtcct gaaggtggcc atcctggccg 240
agaagtacgc cgtggactac agctggtacg tggacaccat cctcaacctc atccgcattg 300
cgggncgact acgtgagtra ggaggtgtgg taccgtgtgc tacagatcgt caccaaccgt 360
gatgacgtcc agggctatgc ccgcaagccc gtctcccgtc acctgtgtga gctgctggca 420
cagcagttct gagccctgga ctctgccccg ggggatgtgg ccggcactgg gcanncccctt 480
ggacttgang ca 492

<210> 447
<211> 1539
<212> DNA
<213> Homo sapiens

<222> (413)
<223> n equals a,t,g, or c

<400> 444
actacaaaaa ggagtgctga agccaatcac catgtaagca agataaaagc aaagggggtc 60
ttgcctgccc atctctgttc catacattct taccaggcac tgagagtcat ggggagttta 120
agactccatc ccacatactc cttttgaaac tggtccagtg tacaacatcc agtgaagagt 180
ataggatggc atagacttac caactcaaag aatggaagga ttctagaaac attatagtcc 240
aacctcctca attcatcgtt gatacacaaa ggcccactaa gctgtgtggt tcactcagca 300
tcacgtggct aatatgatat gaagccacac tagcttgtcc tcagctgtgc caagaatgag 360
agctgccttc tccaaaccta aaaccaaccc atggnatcat taacacctct ttnaaatcca 420
tagggcagtg 430

<210> 445
<211> 2153
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (166)
<223> n equals a,t,g, or c

<400> 445
aggtgcctgg gtcgcagcct cttgagacgg gagccctccg agaagactca ctgcccccga 60
gaatcctact gcacccctgg tttgagtccg tcttggaacc cgggtacatc gactcagaaa 120
taggaacttc agaccagatt gttccagagt accaggagga cagtgnacat tagttccttc 180
ttctgctaat ccccaaaacc tcagaaacct cataattctt aacacctggc atttccattt 240
ctaaagatgg acaggccctt tggcgtggta ccaaccagat aatgactgca tcaggatgaa 300
agctgctgaa ctcggcatgg ygcctcctct tctctgttgg gatgagtgac tttattgatt 360
tgagcagcat atgctgtgat tggctgccct gcaaatttgt ttcccttaag gaaccctcac 420
caactatctc tgctggattt gggagttccg catcttttgt ggagggcaga gtatggacat 480
cttacacccg gtggtcaagt gtgtaataaa cttgagcatt cgaatgggag aaaaagcaaa 540
tcgcacaatg acatattttg agtaataacc gtatttttca cagggtgaca aattgggcca 600
ataaatctgc catctttgaa ctcatctttg gtggctagac tgctacggca gcttctctga 660
tgggaaagtt cctttttttgg cttaacactc accctttctt cacactcaca tttaccaatg 720
actctgctcc gtttttggag cagactgttt taagttgctc aggagcctga tggaaccatg 780
aaccgagact cttctctgtt tcctgccaag acctcatctg cactaatgcc ttctccctga 840
ccttgacact tccccctttta gctataaaag cacttaccag ccgaacgtgg aacagtatca 900
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aaagataagg aggctcccac ccacctctcc caagagcaga cattaaacat ctttgtgctt 1140
tgaagagagt gaattttgga tagtcttgtg attctcagac taacttccag aattatactt 1200
taacccctcc cagatatggt ccgcctttgg cattgtgtgt acatctgcag ttttgcatgg 1260
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ggtgggaatc cagcctctgt tagatatgtc cagagatgga aactcactcc cctacaaaag 1500
atggagctta atggagaaat tgcaactttc attaaaaaac aaattcagat gaaatatcag 1560
taactgtctt ggacagtgct gaaatcaggt ggttaaacgg gtaaacaaaa tatactgtat 1620

<220>
<221> misc feature
<222> (1878)
<223> n equals a,t,g, or c

<400> 443
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ggtgcctgga tgacaagtgg acagtttaag ccggttcctc agatcctaat ggagctgccc 120
cctgccgagc aacaraggct ctttaacgaa gccgcagcca tcatcaggca cctggagtgg 180
acggacgccg tgcagctgac tgcgctggtc atgggcagcg aggccctgca gcagcagcts 240
ctggccatgc tggtgaacta cgtcaccaag gagctgcggg ccgagatcca gtatgatgac 300
taggccgcac ctccggggag gtgrggnkgc ccctttaaat gactctgtga ttctgaagag 360
gtggcttggg agttgggaga agcccagcgg atgccccctg gggaatctcc acatcatcag 420
tgtattacta gtaatgtccc gctggagagg ccaccgctgt gcagtgtcat gttccagaaa 480
ttactgatga agcagcatgt gttggtggca tgtgcactgg cctgccatga cagccctctg 540
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tcctctcacc cgcatgggtc tggggaagtg atcacgctca gccgacggtc tgaccacact 660
tcatcctccc cccggggcct tctcatcttg ggagatgact cctcttcaga gcacctgctg 720
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tctagagatg atttaaatta tacaggaagg tgtgcgtagg ttacgtgcaa acgctatgcc 1680
attgcccatc agggacttga gcatcctcag atgtcggtgt ctgagggttg aggttgcagt 1740
cctggaaccc atcccccatg gatactgagg catagctgta ctgtgtgttt tcactttgct 1800
ttcagaacta cgacttgaat gtgatcgatt acaataaatg tttttctaaa aagccaaaaa 1860
aaaaaaaaaa aaaccccngg gggggcccgg taccaattc 1899

<210> 444
<211> 430
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (395)
<223> n equals a,t,g, or c

<220>
<221> misc feature

gcgagtcttc atctaaggga ccaaggtcag cagaaactag ctggggtaat cagaattagt 1860
tttaacttcc tgtgatggtt tttttgcgct ttaactctag agttgtttta aaaaattaaa 1920
aatcttagag cggttccgtt gcattgttca caactantct taacaccagc cgtgaaaatg 1980
gctgatcaaa tncan 1995

<210> 442
<211> 1723
<212> DNA
<213> Homo sapiens

<400> 442
agcagcactt ccggtacgaa aaactcgctg ctgccccaac ctggcttgac aggcttggtc 60
tctgcaagtg gctctcagcc ccttcttctt tcctgcctca ccttccaatt cgtttgccgc 120
cgccgtcccg cagctgctgt ttccggagtt gccccttccc catgttccgg ggcaggagtc 180
cgcaaagcga agatccgccc gccggttcct catcatgtcc gaactgacta aagagctgat 240
ggagctggtg tggggcacca agagcagccc cggtctctcg gacaccattt tctgccgctg 300
gacgcaaggg tttgtgttta gtgaatcaga gggatctgca ttagaacagt ttgaaggtgg 360
cccctgtgct gttattgcac ctgttcaggc atttcttttg aagaagctcc tgttttcttc 420
ggagaagtct tcttggcggg attgttcaga ggaagagcag aaggaactcc tttgtcatac 480
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tcatgcatta attcaaaaaa gatcgttcag aagtttacca gaattaaaag atgctgtctt 720
ggaccagtat tcaatgtggg gaaataaatt tggagtattg ctttttctgt attctgtatt 780
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cgtatttttt gccaaggata tggctttagt tgcccctgaa gctccttcag aacaagccag 1140
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taaattagat ccagaaggat taggaatcat attattgggc ccatttcttc aagaattttt 1320
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gcagtcaaat tataatgaaa aggtcatgta cgtagaaggg actgcagttg tgatgggttt 1440
tgaagatccc atgctacaga cagatgacac tcctattaaa cgctgtctgc aaaccaaatg 1500
gccatacatt gagttactct ggaccacaga tcgctctcct tcactaaatt aatttgtcta 1560
agtatttata aggaagatct taataacaga tgttgaaaga aggagtcaag actggcaatt 1620
ggctggatta agctaaacac tggtatcact gattaactgt aaataacaat taaaaacaca 1680
ttttcagtgt taaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaa 1723

<210> 443
<211> 1899
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (327)
<223> n equals a,t,g, or c

<210> 441
<211> 1995
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1957)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1992)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1995)
<223> n equals a,t,g, or c

<400> 441
gcccacgcgt ccgcccacgc gtccgcagca tcaccatgtc tgttcgatac agctcaagca 60
agcactactc ttcctcccgc agtggaggag gaggaggagg aggaggatgt ggaggaggag 120
gaggagtgtc atccctaaga atttctagca gcaaaggctc ccttggtgga ggatttagct 180
caggggggtt cagtggtggc tcttttagcc gtgggagctc tggtgggggc tgctttgggg 240
gctcatcagg tggctatgga ggattaggag gttttggtgg aggtagcttt cgtggaagct 300
atggaagtag cagctttggt gggagttatg gaggcagctt tggagggggc agtttcggag 360
gtggcagctt tggtgggggc agctttggtg gaggcggctt tggtggaggc ggctttggag 420
gaggctttgg tggtggattt ggaggagatg gtggccttct ctctggaaat gaaaaagtaa 480
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aatcaaacta tgagctggaa ggcaaaatca aggagtggta tgaaaagcat ggcaactcac 600
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ctgaacaaaa ccgcaaagat gctgaagcct ggttcaatga aaagagcaag gaactgacta 1080
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ttggacgccg ggagattgag attgcagagc aagacatgtc tgctctgatt tcactcagga 660
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g 721

<210> 440
<211> 1041
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1025)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1030)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1039)
<223> n equals a,t,g, or c

<400> 440
ctcgtgcgcg gacattgtca gctgcgtttc cgcggtcgcg gttgaggagc tcaagcttgg 60
gaaaatggtg tgcattcctt gtatcgtcat tccagttctg ctctggatct acaaaaaatt 120
cctggagcca tatatatacc ctctggtttc cccccttcgtt agtcgtatat ggcctaagaa 180
agcaatacaa gaatccaatg atacaaacaa aggcaaagta aactttaagg gtgcagacat 240
gaatggatta ccaacaaaag gaccaacaga aatctgtgat aaaaagaaag actaaagaaa 300
ttttcctaaa ggaccccatc atttaaaaaa tggacctgat aatatgaagc atcttccttg 360
taattgtctc tgaccttttt atctgagacc ggaattcagg ataggagtct agatatttac 420
ctgatactaa tcaggaaata tatgatatcc gtatttaaaa tgtagttagt tatatttaat 480
gacctcattc ctaagttcct ttttcgttaa tgtagctttc atttctgtta ttgctgtttg 540
aataatatga ttaaatagaa ggtttgtgcc agtagacatt atgttactaa atcagcactt 600
taaaatcttt ggttctctaa ttcatatgaa tttgctgttt gctctaattt ctttgggctc 660
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aaaancccn gggggggnc c 1041

<400> 438
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gataaaactt tcttttctga tcatgaatca agtatctgtg gtttcatgcc cctctctata 120
cctttcaaag aactcctgaa gcaacttaac tcatcatttc agcctctgag tagaggtaaa 180
acctatgtgt acttctgttt atgatccata ttgatattta tgacatgaac acagaatagt 240
accttacatt tgctaaacag acagttaata tcaaatcctt tcaatattct gggaacccag 300
ggaagttttt aaaaatgtca ttactttcaa aggaacagaa gtagttaacc aaactaacaa 360
gcaaaacctg aggtttacct agtgacacca aattatcggt attttaactg aatttaccca 420
ttgactaaga atgaaccaga tttggtggtg gttttgtttc tatgcaaact ggacacaaat 480
tacaacagta aattttttta taagtgcttc tcccttctcc atgatgtgac ttccggagat 540
aaaggattca aaagataaag acaaagtacg ctcagagttg ttaaccagaa agtcctggct 600
gtggttgcag aaacactgtt ggaagaaaag agatgactaa gtcaagtgtc tgccttatca 660
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tccttgataa aagtcatctt ctctactgtg tgaaatgaat acttggaatt ctaattgttt 780
tgtgtgccag gggcagtaat gtccctgcct cttctcccaa tcaaggttga ggagtggggc 840
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ttttatgctc atgcaccaac ccatacagag taaatctttt atcaactata tactggtgtt 1020
taatagagaa tgattgtctt ccgagttttt tggttccttt tttaactgtg ttaaagtact 1080
tgaaatgtat tgactgctga ctatatttta aaaacaaaat gaaataattt gagttgtatt 1140
acagaggttg acattgttca gggatgggac aaagccttct tcaatccttt tcatactact 1200
taatgatttt ggtgcaggaa cctgagattt tctgatttat atttcatgat atttcacatt 1260
tgctcttcac agcatgagca tgaagcccag tggcaccaaa tggctgggta caatcaagtg 1320
atattttgta gcacctcact atctgaaagg ccatgagttt tcagatgatt tcattgagct 1380
tcattgcagc ctgaaatttt aaaaaagttg tgtaatacgc caaccagtca agttgtgttt 1440
tggccagaga tttagatatg tccaatttcc tggctcattt cattgtgctc tatgggtacg 1500
tataaaaagc aagaattctg tttcctaggc aaacattgca actcagggct aaagtcatcc 1560
agtgaaactt ttagagccag aagtaacttt gtcccagtcc tacaatgtga aaagagtgaa 1620
tagttgcctc tttttagcca ttttcatggc tggtacatat tcgtacgcat tacttttcag 1680
aatcaatacg cactttcaga tattcttatt tttattctct taagtcttta ttaactttgg 1740
agagagaaat gatgcatctt tttattttaa atgaagtaga tcaacatggt ggaacaaaat 1800
gataaagaac agaaaacatt tcaatatatt actaataact ttttccaata taaatcctaa 1860
aattcctata acatagtatt ttacagtttt atgaagcttt ctattgtgac ttttatggaa 1920
ttaagagatg aagaagatga gatattttag catttatatt tttcaaaatt atatgtatac 1980
ttaaaaataa agtaacttta tgcatttaaa aaaaaaaaaa agggsggccc gttttagagg 2040
atccangttt acnncc 2056

<210> 439
<211> 721
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (688)
<223> n equals a,t,g, or c

<400> 439
ggcggcgcgg rcaggtcgga gctcggagct gctgcttctg gttctcttgt ggccgccgtc 60
gctgtccggc tgccttgggc tgccgaacag acaaggcgtg ggccacagca cctcagaagc 120
cgacgcagct cgacgcaggg gccggcagga gggtgggcga tcgcgtgtcg gagggcgccg 180

caacaagagc aagtgtcaga actgcttcaa gccccgcgag tcgcatctgc tcaacgacga 180
ggacctgacg caggcaaaac ccatttatgg cggttggctg ctcctggctc cagatgggac 240
cgactttgac aacccagtgc accggtctcg gaaatggcag cgacggttct tcatccttta 300
cgagcacggs ctcttgcgct acgccctgga tgagatgccc acgacccttc ctcagggcac 360
catcaacatg aaccagtgca cagatgtggt ggatggggag ggccgcacgg gccagaagtt 420
ctccctgtgt attctgacgc ctgagaagga gcatttcatc cgggcggaga ccaaggagat 480
cgtcartggg tggctggaga tgctcatggt ctatccccgg accaacaagc agaatcagaa 540
gaagaaacgg aaagtggagc cccccacacc acaggagcct gggcctgcca agtggctgtt 600
accagcagca gcagcagcag cagcagcagc agcagcatcc ccagtgctga gaaagtcccc 660
accaccaagt ccacactctg gcaggaagaa atgaggacca aggaccagcc agatggcagc 720
agctgagtcc agctcagagt cccagccaga gccagcctcc tgctgccagc ytctgcggga 780
actgggctag agagcaaaga agaggagagc gccatgagta gcgaccgcat ggactgtggc 840
cgcaaagtcc gggtggagag cggctacttc tctctggaga agaccaaaca ggacttgaag 900
gctgaagaac agcagctgcc cccgccgctc tcccctccca gccccagcac ccccaaccac 960
aggaggtccc aggtgattga aaagtttgag gccttggaca ttgagaaggc agagcacatg 1020
gagaccaatg cagtggggcc ctcaccatcc agcgacacac gccagggccg cagcgagaag 1080
agggcgttcc ctaggaagcg ggacttcacc aatgaagccc ccccagctcc tctcccagac 1140
gcctcggctt cccccctgtc tccacaccga agagccaagt cactggacag gaggtccacg 1200
gagccctccg tgacgcccga cctgctgaat ttcaagaaag gctggctgac taagcagtat 1260
gaggacggcc agtggaagaa acactggttt gtcctcgccg atcaaagcct gagatactac 1320
agggattcag tggctgagga ggcagccgac ttggatggag aaattgactt gtccgcatgt 1380
tacgatgtca cagagtatcc agttcagaga aactatggct tccagataca tacaaaggag 1440
ggcgagttta ccctgtcggc catgacatct gggattcggc ggaactggat ccagaccatc 1500
atgaagcacg tgcacccgac cactgccccg gatgtgacca gctcgttgcc agaggaaaaa 1560
aacaagagca gctgctcttt ttgagacctg cccgaggcct actgagaagc aagaggcaga 1620
gctgggggag ccggaccctg agcagaagag gagccgcgca cgggagcgga ggcagagggc 1680
cgctccaaga cctttgactg ggctgagttc cgtcccatcc agcaggccct ggctcaggag 1740
cgggtgggcg gcgtggggcc tgctgacacc cacgagcccc tgcgccctga ggngnasctg 1800
gggaagctgg agcgggancg tgcacngaag cgggaggagc gccncaagcg cttcnggatg 1860
ctcgacgcca cagaacgggc ca 1882

<210> 438
<211> 2056
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (2046)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2053)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2054)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (242)
<223> n equals a,t,g, or c

<400> 436
aattcggcac gaggaaaccc ttagtcctgg ccatttcaaa agcatcacac agaagaagac 60
cttgatattt acatttaagt cacatatgca gctactgaca cttactagtg ctgttatagt 120
cctggctatt attccatgag gtcgtcacat tttaaccttt tgcataagcc tccaacggcc 180
tgatggaatg atgaagcctc agaacagttt ctacacaatg gctaagggat gtacccattt 240
tnaattttcc tcttttctgt gatcacagag ggtgaatacg ctttggccgg atacacagaa 300
gtgaaaactg tcacccat 318

<210> 437
<211> 1882
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1793)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1795)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1818)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1826)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1844)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1855)
<223> n equals a,t,g, or c

<400> 437
tagcccgtcg ggagcgccag gccggccagg cctgcgccgy cgccgccgcc gccgtcgccg 60
ccgcgccgac catgtcgmag ccaaggagaa cccgtgcagg aaattccagg ccaacatctt 120

ggaaccctgc tcttctgcag ccaagctgag gggcaggatg cgtgtgggac agtggtagag 360
aagcagggga tagactcata ggctgcaaca aaggtgactc tgtccctgga cactgcctcc 420
gtactttctc cttgcttcac tggccacagc atctccctcc agccctcgct atgtgcctct 480
gccatcttca cccatcatgg agcagaggtg aggagaggca gcctgggaat atggagacca 540
gtgaaggacc aggcctggag agcacagggt cctacctggg catccagcag aggagcccct 600
aaaggccagg agcaccccaa gaggagggag ggcagccagc ctccattgac ggcgagcctc 660
cagccctctc ctactttgat caccatttct ctccaggctt tctgcctccg agatgtggca 720
ccatagtgcg gtgccctgtg gcttcaccgc cctacttcca cctccgccca gcctgtaatg 780
tttatataag cagcctcaag gaccaagaac catctgcgaa aggacacaca caggaaattc 840
ataaaagaaa tctgaatgga taaaaccatg aaaaaaagta tgcttcatta gtaattaaag 900
aaaggcaaat agagctggaa gcatttttcc cttagcaaac cataacagaa aaaaataaga 960
cccaatattg gcaaagagac tactgaaaaa acattcccat acattgcgtg tgggagtata 1020
catcggtgca ggcttcctgg atgacagttg ggtgatatgt gtcatgtggc ctaaaagcct 1080
ccatgtcatt tgacctacga attctatctt tgggaattta tcctaagaaa atacttaagg 1140
atttagttag tgataagatg ttcatcccag cattgcaatg gagaaaaatg ggaagcaatg 1200
gtttggttgg gaatttattc cttttctgct gtaacgaaag tttgcaatag gggattgctt 1260
aagtaaatta ttgtatctcc atccagatgg tggagtaccg cgcagacatt aaaagtcatg 1320
taaaagaaca tctgactgaa agaaaaatgc tccttgaata ttaaaaggtt gtaaaaatag 1380
tgcatgttat gtgatttcaa ttttgttttt taaaatatgg gtgtatgctt gtatacgtag 1440
agcagataaa aaagacggaa ggcatactaa aaaatgttga gtggttatct ttgtatggtg 1500
gaacaaagtc actgtaattt tcatctttgg tttttctgta atttccaaat tttccacatt 1560
ttgtatttca tataataaat ataatttaag aaaaaaaaaa aaaa 1604

<210> 435
<211> 301
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (274)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (277)
<223> n equals a,t,g, or c

<400> 435
gaggcggtga acgagcagct ttctagcgag cgcagcaacc tggcccaggt gatccgccag 60
gagttcgagg accggctggc agcctctgag gaggagacgc ggcaggccaa ggccgagctg 120
gccacgctgc aggcccgcca gcagctggag ctggaggagg tgcaccggag ggtgaagaca 180
gccctcgcga ggaaggagga ggccgtgagc agcctccgga cacaacatga ggtgagtccc 240
tgtggccagc cctgctggac ctcggggctg gganeangcc tgaccctgtg ggtgtgctgc 300
a 301

<210> 436
<211> 318
<212> DNA
<213> Homo sapiens

cctatctcct actgtcactt tagtcccaat tccaagatgc tggccacagc ttgttggagt 840
gggctttgca agctctggtc tgttcctgat tgcaacctcc ttcacactct tcgagggcat 900
aacacaaatg taggagcaat tgtattccat cccaaatcca ctgtctcctt ggacccaaaa 960
gatgtcaacc tggcctcttg tgcggctgat ggctctgtga agctttggag tctcgacagg 1020
tgaatatcac tgttctgtgg cccatactgc catcactaaa gtagatgttt gattggttgg 1080
tccccaggac ctcagtaaaa atctggcatt agggccatgc gcatgggctc acaccttaag 1140
ggctgaaggc aggagaattn gcttaaaccc ggggaaatgg gangttgtgg tgagccgaga 1200
ttgcacactg cactcccagc t 1221

<210> 433
<211> 1115
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (45)
<223> n equals a,t,g, or c

<400> 433
ggcacacatc accaagccca gccaaatttt gttttttttt tgtanagatg gggtttcatc 60
acgttkccca ggctgatctc gaacctctgg gctcaagcaa ttcactcgcc tcggcctccc 120
aaaatgctgg gattacaggc ctgagccact gcgcccagcc aggatttgaa ttattttaac 180
tcatccatgg gctgccctag aatgtcacaa atgagggttg tttaatgcct ttcttatagc 240
tgctactgga acactattat gacctaattt atgagccatc cttactcatc tacaagtgct 300
gaagcaatgt tacatacttt tttgctaaac tcagattttt tagcctaatt tcttgtcctc 360
ctatccacct gcatccacac atggcctgca tggggctgcc ttccctgcag tgttctgcag 420
ccatgcttca gggtatagct gttggtggac agcctcaggt cttgggggca ctatagccac 480
taaacgaggt gtgaaaggct caagaggatg accagcaatt aattatcccc agaaagtgaa 540
ggaaaagaga cctttaggga tgttgctggt caagtcttga tttgaccgga gtcaaatcaa 600
tcttcaagca atcttggaat cctcaactgc agtaagcatt tcaaaatgca aacaaactgc 660
ttaacaactg acaagacacc agcccatacg ctgctcttcc aacagtgggt tctagctttg 720
aacaaaagtg ctaaacattt ccttgaatat attcttcctc tttttgtcct catcactcaa 780
tactggtgct cttgtcacag gtagaacagc ttgtttcttt tccatctatt caagtgtgtt 840
tctaattcta aaatgctgat cttctctgga gtctatggta ggcaattatg gtcactggaa 900
tagtttgtct tgttttmaaa tattattggt gcatgtacaa cagcatccaa catatctgtc 960
ttgttcctag atatatagct ctgattttag gccttttgtg cataccatta caatatggtg 1020
gggtaagaca ttctacagta gcctgtgctg aactgatctc ttaaataaac ttgcttctgg 1080
ttaactaaaa aaaaaaaaaa agggcggycg ctcta 1115

<210> 434
<211> 1604
<212> DNA
<213> Homo sapiens

<400> 434
ctgctgctac tctgtttctt tcctcacttt gctttccaag gtggtatgtg atcccccagct 60
caggcctgtg cagacaggaa attctcccct gcagcaagta ggggaagtgg gttgtgggat 120
gtgacctcct tccagatatc aggcagtgag tgtaaacctg ccacctccag ccctgatcca 180
ttctcaccta gcggctacag gaagctgtgt ctgttcgatt tggtgggagg agatgtgcag 240
ggagctgtat cttgtcctcc gcttgtgaaa aactcaagga tgtggagaag agtagaccgt 300

<220>
<221> misc feature
<222> (519)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (541)
<223> n equals a,t,g, or c

<400> 431
gccggaactt ttgtcgatag gaacgggttt gcacagttga gtgttgtcgg ccggcgtgaa 60
ggagactagg gggccatcct cttcctttcg ccgtcgccgc cgcggagcgg agtcgagccg 120
agctgatttg atcgaggagc gcggttaccg gacgggctgg gtctatggtc gctccgcggg 180
ccgctccgcc ggctggtgct tttttatcag ggcaagctgt gttccatggc agggaacttt 240
tggcagagct cccactattt gcaatggatt ttggataaac aagatctgtt gaaggagcgc 300
caaaaggatt taaagtttct ctcagaggaa gaatattgga agttacaaat atttttttaca 360
aatgttatcc aagcattagg tgaacatctt aaattaagac aacaagttat tgccactgct 420
acggtatatt tcaagagatt ctatgccagg tattctctga aaagtataga tcctgtatta 480
atggctccta catgtgtgtt tttggcatcc aaagtagang gaaaaaaaat tttttttttt 540
nggggcggg 549

<210> 432
<211> 1221
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1160)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1183)
<223> n equals a,t,g, or c

<400> 432
cgcacttccc ctctgctggg cgcgcggtgg acggtctgaa agggagtgtt cgggtttcgc 60
tggggcctcg cggctccaga gcccagcatg gcttcctcgc gagcctcttc cacggcaacc 120
aaaactaaag cacccgacga cttagttgct ccggtcgtga agaaaccaca catctattat 180
ggaagtttgg aagagaagga gagggagcgt ctggccaaag gagagtctgg gattttgggg 240
aaagacggac ttaaagcagg gatcgaagct ggaaatatta atataacctc tggagaagtg 300
tttgaaattg aagagcatat cagcgagcga caggcagaag tattggctga gtttgagaga 360
aggaagcgag cccggcagat caatgtttcc acagatgact cagaggtcaa agcttgcctt 420
agagccttgg gggaacccat cacacttttt ggagagggtc ctgctgaaag aagagaaagg 480
ttaagaaata tcctctcagt tgtcggtact gatgccttga aaaagaccaa aaaggatgat 540
gagaagtcta aaaagtccaa agaagagtat cagcaaacct ggtatcatga aggaccaaat 600
agcttgaagg tggcaagact atggattgct aattattcgt tgcccagggc aatgaaacgc 660
ttggaagagg cccgactcca taaggagatt cctgagacaa caaggacctc ccagatgcaa 720
gagctgcaca agtctctccg gtctttgaat aatttttgca gtcagattgg ggatgatcgg 780

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (512)
<223> n equals a,t,g, or c

<400> 429
ctatgctact tagatatttg tggcaaagca gaaagctttt tgactgtnaa ggcagaggtc 60
agcactgggg gaaacttgct ggtggtctct cccacaacct tgcccagagt cctttccact 120
aaggaggtga agagaacaga gaaagagatt tccatttctg ctgccagagc tggtatttgc 180
ctgcctgatt ctctgtgttt cctgtttcac cgccaccctt tcaggagaga actacaccag 240
ttcatcatga gggtcaggga agcaaaagct ctcagatgtg tccagggcgt tacttaagaa 300
atgagtatgc agattctgga aggggtgtgg aaaaggtgat cctttacccc cacccaggaa 360
aacctgcatt gtgctagcat ggaanaatca tgggctttgg aattaaaccc atttggtgga 420
attaaaccca tttggtttca aatcccagtt atnacatctg ttaactttgc aaactcacaa 480
aaattatttg aaattatctg agttttcatt tnctcacctt ccagaatggg gataatgcct 540
cctgcatc 548

<210> 430
<211> 569
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (381)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (553)
<223> n equals a,t,g, or c

<400> 430
cccccgccct cggccgcttc tgtgggagca agaagcccga gcccgtcctg gccacaggca 60
gccgcatgtt cctgcgcttc tactcagata actcggtcca gcgaaagggc ttccaggcct 120
cccacgccac agagtgcggg ggccaggtac gggcagacgt gaagaccaag gacctttact 180
cccacgccca gtttggcgac aacaactacc ctgggggtgt ggactgtgag tgggtcattg 240
tggctgagga aggctacggc gtggagctcg tgttccagac ctttgaggtg gaggaggaga 300
ccgactgcgg ctatgactac atggagctct tcgacggcta cgacagcaca gcccccaggc 360
tggggcgcta ctgtggctca nggcctcctg aggaggtgta ctcggcggga gattctgctg 420
tragtcactc gatacaccat accaaaaaag gtttccacct gcgatacacc agcaccaagt 480
tccaggacac acttcacagc aggaaatgac cactggcttr acaagggccg ggactggamc 540
ctgktgccct tgncgcctaa actggataa 569

<210> 431
<211> 549
<212> DNA
<213> Homo sapiens

<222> (76)
<223> n equals a,t,g, or c

<400> 428
ggcagagctt ccagggctgs ccatayttgc catggccgac tcagtagtca ctaacttcaa 60
caaaaataaa actgtngcaa tagtattcta ttaaagcttc tttaactgct taaacttgcg 120
gttttgacat ggtacctatc ctttcttccc ttttcaaaag attcgctata gagtctttct 180
ctacatgcca gtctccaaaa tggcgcggac ggcatcagaa ggtcagaggt gagtcacgtg 240
ggtccccccg gttccggcgc ggttgaggcc ttcggtggtg aacgagtctc cagcaccatg 300
tctggtttgt ctggcccacc agcccggcgc ggcccttttc cgttagcgtt gctgcttttg 360
ttcctgctcg gccccagatt ggtccttgcc atctccttcc atctgcccat taactctcgc 420
aagtgcctcc gtgaggagat tcacaaggac ctgctagtga ctggcgcgta cgagatctcc 480
gaccagtctg gggcgctgg cggcctgcgc agcacctcaa gatcacagat tctgctggcc 540
atattctcta ctccaaagag gatgcaacca aggggaaatt tgcctttacc actgaagatt 600
atgacatgtt tgaagtgtgt tttgagagca agggaacagg gcggatacct gaccaactcg 660
tgatcctaga catgaagcat ggagtggagg cgaaaaatta cgaagagatt gcaaaagttg 720
agaagctcaa accattagag gtagagctgc gacgcctaga agacctttca gaatctattg 780
ttaatgattt tgcctacatg aagaagagag aagaggagat gcgtgatacc aacgagtcaa 840
caaacactcg ggtcctatac ttcagcatct tttcaatgkt ctgkctcatt ggactagcta 900
cctggcaggt cttctacctg cgacgcttct tcaaggccaa gaaattgatt gagtaatgaa 960
tgaggcatat tctcctccca ccttgtacct cagccagcag aacatcgctg gcacgtgcct 1020
gccctaaggc atcctaccaa cagcaccatc aaggcacgtt ggagctttct tgccagaact 1080
gatctctttt ggtgtgggag gacatggggt accacctaca cccaacaagt caatgaggga 1140
cttcttttta atttggtagg attttgactg gttttgcaac aataggtcta ttattagagg 1200
cacctatgac aaaaaatagg ggttacctag ataatgccaa agtcagcatt tgtcctgggt 1260
tcccttgtgt gatctgtttg gactatgttt tcttttcttc tcccacttgc tcagcagctt 1320
gggcttccat tctagttctt ttaccaagat ttttgtgtga ccatgttgac ttcatttgga 1380
ttgccctctt tcaatttcct tgtgaaaaca cccttaactt tctctttacc cttagctgaa 1440
atgtttacat agcttctggt gatatctttt catgatttta aatctcttaa aatggtgatg 1500
gatgtgacac ctcataaaag tgagctttgg actgtagata actcttaaag aaaatgtcat 1560
tttagacaat taaaatattt gtgctcaact gcttggaaaa aaaaaaaaaa aaaaaaaaaa 1620
aa 1622

<210> 429
<211> 548
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (48)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (385)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (453)

acttcatctt ggatgctaat ctgccatgtt gacttctgat taacccccagg cccaggaatg 1080
cctcaagatt tctactttac ttactgttgc ttgtgtaagc caagacaacc ttgatgttat 1140
cataaacatg tacttaccta agtcctgtcc tttggcaaat tatgggctat gagacacagc 1200
attcttgcct ttccctgagg ggtcaatttc agcgatccta cacattcctt ctgaagcact 1260
tatgctcttt ctatatggta tgtaagctct cggtctgggg agtaacagtg cagagatcta 1320
cctgtcttgt tgccacatgt ttctaaactt tccaataaat caccttctac tgacaaaaaa 1380
aaaaaaaaaa aaactcgagg tcgacggtat cgataagctt ga 1422

<210> 427
<211> 830
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (686)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (772)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (809)
<223> n equals a,t,g, or c

<400> 427
gggatcgacc cacgcgtccg cctagcgccg ctgggcctgc aggtctctgt cgagcagcgg 60
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aagagatacc aagtgaaatt tagaagacga cgagagggta aaactgatta ttatgctcgg 180
aaacgcttgg tgatacaaga taaaaataaa tacaacacac ccaaatacag gatgatagtt 240
cgtgtgacaa acagagatat catttgtcag attgcttatg cccgtataga gggggatatg 300
atagtctgcg cagcgtatgc acacgaactg ccaaaatatg gtgtgaaggt tggcctgaca 360
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ggcatggaca agatctatga aggccaagtg gaggtgactg gtgatgaata caatgtggaa 480
agcattgatg gtcagccagg tgccttcacc tgctatttgg atgcaggcct tgccagaact 540
accactggca ataaagtttt tggtgccctg aarggagctg tggatggagg cttgkctatc 600
cctyacagta ccaaacgatt ccctggktat gawtctgaaa gcaaggaatt taatgcagaa 660
gtacatcgga agcacatyat gggccnagaa tggttgcaga ttacatgcgc tacttaatgg 720
gaagaagatg aagatgctta ccaggaacag gttctyttca atwccttaaa gnacagcgta 780
acttccagac catgatggga ggagatgtnt taagaaaagc ttaatgctgg 830

<210> 428
<211> 1622
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature

ggacatagct gatctaaagt actctgtcag ttttaccttc acccatgact gtcattagtt 480
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ataatcatcc tcaaagcctg tttttattac atgatgtgga ctgattattt tttctatcac 600
agtgttaaca gatggatttt attgtaaata caaagaaaac atattgatta ttgtagtatt 660
cttatgtcac ctggcctttt gcgtgagatt atttattatt tctagcaagg ctttcttcct 720
ttcttattgc ccagagactg actgatacat cttttgttat ttttacacat aaattaaaca 780
tagccttttt ggacaaattc actaaatatt aatgtataaa atgtaattga gtaaattttt 840
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cattgattct ttccctttgc taattttttt ttttgttaat ggtagctgcg actttaggtg 1020
gggtatattt tcttctccta agagaataga cagtttttcc agattcatca tcattgactg 1080
tcaagaaagg acccttcagc aaggctgtac cctcaatgca gttgatggcc tgtcttcacg 1140
gatttacaga cttggcctga tgcccatgta aattcaagct ttggcttgtg gtaacaacca 1200
caagaagaca agcatctgtg gtgcggaggc aagcaggcta actaggagtt gacaagctaa 1260
gaaagtgaaa ctgttctttc ttagttaact gtctttctct ggagctctgt tattttgagt 1320
ataatatttc cacgacactt agtaaatgca agctaaaatg taataataat aaattgtatt 1380
ggagaaacct aaaaaaaaat tttttaaaa 1410

<210> 426
<211> 1422
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (328)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (479)
<223> n equals a,t,g, or c

<400> 426
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agaagcatga gcctttctga ctgtctacat gttcttgccc agttttaact tctagtcatg 120
gcgaatgatc gcaggagagc acagactgga ccctgctacg atctctcttg gagtggatca 180
gactgatgat caccaacaac caactcattc ccggataagg aagaagagag tgtcacctac 240
ttcagtgtgg tttcaaccct acttctgcat cttaaagaca ctgtatggtt tcagcagtag 300
tgcccctgtt cattagtccc cctgatgntt tcattcctca tctcatcttt ttcttagcag 360
cattcaatga atccttcatt ctagaaacac tctatatctt tggttttcat grgaccattc 420
tcaccttgtt ttgtcctgtg actttttga aaaaaacaaa aacaaaaaac ccttttttnc 480
tttttaaatt ctggtaaaaa acacaatgaa aatttgctat cttaaccatg ttgaaatgtg 540
cagttagtaa agtacattca cattgtggtg caagccatca ctaccatcca tcactagaac 600
cctttttcatc ttgcagatct gaaactctac ccattaaacr acttcccatc ttcccatccc 660
cacagctcct agcaaccaac attctacttt ctctatcagt ttgactactc taggtacctc 720
atatgagtag aatcatacag catttatcct tctctgcctg gcttatttca cttgtataat 780
gtccycaagg ttcattcatg ttgtagcatg catcagaact tcctcccctt ttaaaggctg 840
gataatattt catggtatgt ttagatcaca ttctgtttat ccattcatcc atcagtgaac 900
acttgtgctc cttccaactt tgggctgttg ggtgtcctgc cactgttgct cctagtgctc 960
aatctcgttt attccctcct aatcaagtgt acaacgttgg acactgtgca ggatgatgcc 1020

gtaaagcagc tctttcgacg tgtagcagca gctttgccgg gaatggaaag cacacaggac 960
agaagcagag aagatatgat tgacataaaa ctggaaaagc ctcaggagca accagtcagt 1020
gaaggaggct gttcctgcta atctcccatg tcatcttcaa ccttcttcag aagctcactg 1080
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tctttttttaa aaacataata ctgtgcaggc aaggcactgt aaaagtttta attccttcca 2040
gaagaaccag tggaagaatt taaatttggc gctacgatca aaactactga attagtagaa 2100
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cacagtataa agatgaaaag acaacaaaaa tatcttcata cttcctcatc ccctcattgg 2760
aacaaaacct taaactggga gaaccttagt cccctctctt tcctcttcct cctccacttc 2820
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agtgctttta taatacaata taattgttaa aggcaagggt tgactctttg ttttattttg 3000
acatggcatg tcctgaaata aatattgatt caatatggca aaaaaaaaaa aaaaaaaaaa 3060
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaagggcg gccgctcgcg atcttagc 3118

<210> 425
<211> 1410
<212> DNA
<213> Homo sapiens

<400> 425
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ttattttaaa cagtgacagc aaaacacaag tgattaaata tagtttattt gttccaatga 120
ctaaatttta cctcatttat taatctggtc attaaggaat atatttaata atattatgta 180
attattcttt ttatgcatga tacacctaga aaaatgcctt ttgtttctat tgatggcttt 240
gttgtttgga gctacttttg attacttatt gcagtttccc aatttagtct ttactttatc 300
taactcacaa agtaaaatta actgatcaca tggcaactac tgtatttaaa tagttctgga 360
aaaatgaaag tgctttttgc tgcttggtaa atgggtaatg cccttgattc cttgactgta 420

<221> misc feature
<222> (489)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (510)
<223> n equals a,t,g, or c

<400> 423
ggcggcgcct gctctgtaga gccggcggaa ccgggtagct tggccaggtt gtgaggaacc 60
gcagcgcgcc gcaggaccgg gccgctgagc ctgcagccgc cccgcgccgt gacctgcgac 120
cctagacccc gactcccttt ggctcagccc gcgcgcccca ggcccggccc gggcggcgcg 180
acgggaggat gagcggcggg cggcggaagg aggagccgcc tcagccgcag ctggccaacg 240
gggccctcaa agtctccgtc tggagtaagg tgctgcggag cgacgcggcc tgggaggata 300
aggatgaatt tttagatgtg atctactggt tccgacagat cattgctgtg gtcctgggtg 360
tcattttggg gagttttgcc attacgaggg ttcttgggaa tagcaggatt ctgcctgatc 420
aatgcaagag tccttgtacc tntacttcag caattactac agattgatga aggaagaata 480
tggtnggdnc ttggaaactc acaaaggaan ggtttatgac ctctttgc 528

<210> 424
<211> 3118
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (388)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (485)
<223> n equals a,t,g, or c

<400> 424
ggcggcagct gtggaagctc aggcgctgcg cgtgagaggt cccagatacg tctgcggttc 60
cggctccgcc accctcagct tctcttcccc aggtctggga gccgagtgcg gaaggaggga 120
acggccctag ctttgggaag ccagaggaca cccctggctc ctgccgacac cgccctcctt 180
cccttcccag ccgcgggcct cgctcggtgc taggctactc tgccgggagg cggcggcggc 240
tgccagtctg tggagagtcc tgctgccctc cagccgggct cctccaccgg gccttgcagg 300
ggccgagaga gctcggtgcc cgcccttccg ctcgcctttt tcgtcagctg gctggagcag 360
catcggtccg ggaggtctct aggctgangc ggcggccgyt cctctagttc cacaatgtcc 420
acgggcggag acttcgggaa tccgctgagg aaattcaagc tggtgttcct gggggagcaa 480
agckntggaa agacatcttt gatcaccaga ttcatgtatg acagttttga caacacctat 540
caggcaacaa ttggcattga ctttttatca aaaactatgt acttggagga tcgaacagta 600
cgattgcaat tatgggacac agcaggtcaa gagcggttca ggagcttgat tcctagctac 660
attcgtgact ccactgtggc agttgttgtt tatgatatca caaatgttaa ctcattccag 720
caaactacaa agtggattga tgatgtcaga acagaaagag gaagtgatgt tatcatcatg 780
ctagtaggaa ataaaacaga tcttgctgac aagaggcaag tgtcaattga ggagggagag 840
aggaaagcca aagagctgaa tgttatgttt attgaaacta gtgcaaaagc tggatacaat 900

acagccagtg tcctggccag atgaaatgct gccgcaatgg ctgtgggaag gtgtcctgtg 420
tcactcccaa tttctgagct ccagccacca ccaggctgag cagtgaggag agaaagtttc 480
tgcctggccc tgcatctggt tccagcccac ctgccctccc ctttttcggg actctgtatt 540
ccctcttggg ctgaccacag cttctccctt tcccaaccaa taaagtaacc actttcagca 600
aaaaaaaaaa aaacttgggg gg 622

<210> 422
<211> 1285
<212> DNA
<213> Homo sapiens

<400> 422
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agttggtcat gatgcagaag ctactcaaat gcagtcggct tgtcctggct cttgccctca 120
tcctggttct ggaatcctca gttcaaggtt atcctacgca gagagccagg taccaatggg 180
tgcgctgcaa tccagacagt aattctgcaa actgccttga agaaaaagga ccaatgttcg 240
aactacttcc aggtgaatcc aacaagatcc cccgtctgag gactgacctt tttccaaaga 300
cgagaatcca ggacttgaat cgtatcttcc cactttctga ggactactct ggatcaggct 360
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tataaaagag gattttccca ccttgacacc aggcaatgta gttagcatat tttatgtacc 600
atggttatat gattaatctt gggacaaaga attttataga aatttttaaa catctgaaaa 660
agaagcttaa gtttatcat cctttttttt ctcatgaatt cttaaaggat tatgctttaa 720
tgctgttatc tatcttattg ttcttgaaaa tacctgcatt ttttggtatc atgttcaacc 780
aacatcatta tgaaattaat tagattccca tggccataaa atggctttaa agaatatata 840
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aataatgaaa cacagtgaat ttgtagagtg ggggtatttg acatatttta cagggtggag 1020
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gtcaatacct catactgctt tacctttttt tcctggatat ctgtgtattt tcaaatgtta 1200
ctatatatta aagcagaaat ataaccaaaa aaaaaaaaaa aagggsggcc scyctagagg 1260
atccggcgag ggccctaaa cttaa 1285

<210> 423
<211> 528
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (442)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (485)
<223> n equals a,t,g, or c

<220>

<220>
<221> misc feature
<222> (283)
<223> n equals a,t,g, or c

<400> 420
cccacgcgtc cgctctcctc aaatctccac ctgatatcac caacttggaa gtcctnaatg 60
tccccatggg gggtgttcct tccagactcc gccaactgtg aattgccttt gttaaccccg 120
tgcagcaagg ctgtgatgag tcaagcctta aaagctacct tcagtggctt caaaaaggaa 180
cagcggcgcc tgggcattcc aaagaacccc tggctgtgga gtgagcaaca ggtatgccag 240
tggcttctct gggccaccaa tgagttcagt ctggtgaacg tgnaatctgc agaggttcgg 300
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ctttgtgggt gacattctct gggaacatct ggagcaaatg atcaaagaaa accaagaaaa 420
gacagaagat caatatgaag aaaattcaca cctcacctcc gttcctcatt ggattaacag 480
caatacatta ggttttggca cagagcaggc gccctatgga atgcagacac agaattaccc 540
caaaggcggc ctcctggaca gcatgtgtcc ggcctccaca cccagcgtac tcagctctga 600
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ggccttattg catcccaaac cacgcctctt gaccaggctg cctcccttgt ggcagcaacg 1500
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aaggagcgag catgtcgtgg acacacacag actattttta gattttcttt tgccttttgc 1680
aaccaggaac agcaaatgca aaaactcttt gagagggtag gagggtggga aggaaacaac 1740
catgtcattt agaagttagt ttgkatatat tattataatc ttataattgt tctmagaatc 1800
ccttaacagt tgtatttaac agaaattgta tattgtaatt taaaataatt atataactgt 1860
atttgaaata agaaaaaaaa aaaa 1884

<210> 421
<211> 622
<212> DNA
<213> Homo sapiens

<400> 421
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ccatgcctgc ttgtcgccta ggcccgctag ccgccgccct cctcctcagc ctgctgctgt 120
tcggcttcac cctagtctca ggcacaggag cagagaagac tggcgtgtgc cccgagctcc 180
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agtgctgcag cgcgggctgt gccaccttct gctctctgcc caatgataag gagggttcct 300
gcccccaggt gaacattaac tttccccagc tcggcctctg tcgggaccag tgccaggtgg 360

<213> Homo sapiens

<400> 419
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acgctgacgc cccgacgccg atccggccga gccaagtaag ggggacggcc cgagacggag 120
aagggagaga gtgggagttt cccagcccgc agaactttcg aagttgagaa ragaaccccct 180
ggaacgtgcg ctcagcactg ggatttctg gactcaacga tgactctgaa taatgtcacc 240
atgcgccagg gcactgtggg catgcagcca cagcagcagc gctggagcat cccagctgat 300
ggcaggcatc tgatggtcca gaaagagccc caccagtaca gccaccgcaa ccgccattct 360
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caggtcgggg acgcatacct gattgtctac tcaatcacag accgagcgag cttcgagaag 720
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caaaccacct tttatgtttt attatttttg aattcatgga gccatcataa aaatattttt 1860
aaaatcagaa ttattgatac cctgtagtgc aaaatgtcaa tttttaatgt ataatcagaa 1920
gtctgaattt ttataaaaca tatagcataa aaacttccag tactttggtt gacccttgta 1980
tgtcacagct ctgctctatt tattattatt ttgcaaaata accattttaa catttgataa 2040
agcatattta tgaacatatt tcttaataag aaaaatatcc atttattac catttctat 2100
ctttttcaaa atatgcaagt ttttacctat atgtcttata ataaaagaaa taaaatattt 2160
gaaaaaaaaa aaaaaaa 2178

<210> 420
<211> 1884
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (56)
<223> n equals a,t,g, or c

graaaacacg tctcaccact gtggttgatt caaaagaaag tgattctatt ttttaaagaa 1080
agcgttgtta atgtaattgg tatccctcct aacttttga gttcasaatt tacttggtca 1140
gattttctat tcttttttt ttttaaacta atga 1174

<210> 418
<211> 673
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (213)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (506)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (586)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (618)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (661)
<223> n equals a,t,g, or c

<400> 418
gtcagtcagt gcgcggccag gtacgggccg acgggcccgc ggggccggcg ccgccatggc 60
gccgtgtttg atttggattt ggagacggag gaaggcagcg agggcgaggg cgagccagag 120
ctcagccccg cggacgcatg tccccttgcc gagttgaggg cagctggcct agagcctgtg 180
ggacactatg aagaggtgtt ccaggtgcga aangtgcaag gcaccaactt gggcaaaata 240
tatgccatga aagtcctaag gaaggccaaa attgtgcgca atgccaagga cacagcacac 300
acacgggctg agcggaacat tctagagtca gtgaagcacc cctttattgt ggaactggcc 360
tatgccttcc agactggtgg caaamtctac ctcatccttg agtgcctcag tggtggcgag 420
ctcttcacgc atctgggagc gagagggcat cttcctggga agatacggcc tgcttctacc 480
tggctgagat cacgctggcc ctgggncatc tccactccca gggcatcatc taccggggac 540
ctcaagcccg aggaacatca tggttcagca gccagggccc acatcnaaac tgaccgactt 600
ttggactttt ggcaaggngt tttattccat ggggggcgcc cttcaattga caacttttg 660
ngggcaacca ttg 673

<210> 419
<211> 2178
<212> DNA

tgagaacatt cgcaagctca ccgggcggga tccgaatgac gtgaggccca tccaagccag 180
attgctggcc ctttctggtc ctggtggagg tagaggacgt ggtagtttat tactgaggcg 240
tggattctca gatagtggag gaggaccccc agccaaacag agagaccttg aaggggcagt 300
cagtaggctg ggcggggagc gtcggaccag aagagaatca cgccaggaaa gcgacccgga 360
ggatgatgat gttaaaaagc cagcattgca gtcttcagtt gtagctacct ccaaagagcg 420
cacacgtaga gaccttatcc aggatcaaaa tatggatgaa aagggaaagc aaaggaaccg 480
gcgaatattt ggcttgttga tgggtaccct tcaaaaattt aaacaagaat ccactgttgc 540
tactgaaagg caaaagcggc gccaggaaat tgaacaaaaa cttgaagttc aggcagaaga 600
agagagaaag caggttgaaa atgaaaggag agaactgttt gaagagaggc gtgctaaaca 660
gacagaactg cggcttttgg aacagaaagt tgagcttgcg cagctgcaag aagaatggaa 720
tgaacataat gccaaaataa ttaaatatat aagaactaag acaaagcccc atttgtttta 780
tattcctgga agaatgtgtc cagctaccca aaaactaata gaagagtcac agagaaaaat 840
gaacgcttta tttgaaggta gacgcatcga atttgcagaa caaataaata aaatggaggc 900
taggcctaga agacaatcaa tgaaggaaaa agagcatcag gtggtgcgta atgaagaaca 960
gaaggcggaa caagaagagg gtaaggtggc tcagcgagag gaagagttgg aggagacagg 1020
taatcagcac aatgatgtag aaaagaaaga aaagaaagga aaggaagaaa agaaggaaag 1080
aaagaaaaga aaagaaagga aagaaaagaa aac 1113

<210> 417
<211> 1174
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (2)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (7)
<223> n equals a,t,g, or c

<400> 417
gnccacncgt ccggtgacgt acatccggcg agtagctggc ggtcccgggt gctgctggtt 60
agtgtgctct gagggagggt ccgagccagc cgctgttttg ccggaggagc ccctcaggcc 120
gtagtaagca ttaataatgt ctttcatctt tgagtggatc tacaatggct tcagcagtgt 180
gctccagttc ctaggactgt acaagaaatc tggaaaactt gtattcttag gtttggataa 240
tgcaggcaaa accactcttc ttcacatgct caaagatgac agattgggcc aacatgttcc 300
aacactacat ccgacatcag aagagctaac aattgctgga atgaccttta caacttttga 360
tcttggtggg cacgagcaag cacgtcgcgt ttggaaaaat tatctcccag caattaatgg 420
gattgtcttt ctggtggact gtgcagatca ttctcgcctc gtggaatcca aagttgagct 480
taatgcttta atgactgatg aaacaatatc caatgtgcca atccttatct tgggtaacaa 540
aattgacaga acagatgcaa tcagtgaaga aaaactccgt gagatatttg ggctttatgg 600
acagaccaca ggaaagggga atgtgaccct gaaggagctg aatgctcgcc ccatggaagt 660
gttcatgtgc agtgtgctca agaggcaagg ttacggcgag ggtttccgct ggctctccca 720
gtatattgac tgatgtttgg acggtgaaaa taaaagagtt ttacttctct ggactgatcc 780
tattcacagc ttcctcatga acttttctaa tagaacaagg aaagctctcc aaccatgtct 840
ggcgttgaga agccaagagt ctctgtcaac tctctcattg cccagtggtg acatgtgctc 900
ttctccacac tgttgggagg taatgctgcc ccacgtgctg gtgcaggtca gtatcctggg 960
acttggaagc tggcaggatt tgccgggtaa agctgtatgc catcatgggg cacctgaaaa 1020

Glu Lys Pro Glu Glu Glu Asp Leu Arg Asn Glu Val Leu Xaa Phe Ser
260 265 270

Thr Asn Cys Pro Glu Cys Asn Val Pro Xaa Gln Thr Asn Met Lys Leu
275 280 285

Met Val Val Leu Phe Ala Trp Lys
290 295

<210> 1261
<211> 53
<212> PRT
<213> Homo sapiens

<400> 1261
Gly Gly Arg Gly Gly Arg Ile Thr Gly Ala Arg Glu Phe Lys Thr Ser
1 5 10 15

Leu Gly Asn Ile Val Lys Pro Ser Pro Gln Ile Ile Phe Lys Lys Leu
20 25 30

Ala Arg His Gly Gly Ala Ala Cys Ser Pro Ser Tyr Ser Gly Gly Leu
35 40 45

Gly Gly Arg Ile Ala
50

<210> 1262
<211> 200
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (4)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (6)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (7)
<223> Xaa equals any of the naturally occurring L-amino acids

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1260

Arg Pro Thr Arg Pro Arg His Ala Trp Ala Glu Leu Arg Val Val Ala
1 5 10 15

Met Ala Ala Ser Gly Ala Val Glu Pro Gly Pro Pro Gly Ala Ala Val
20 25 30

Ala Pro Ser Pro Ala Pro Ala Pro Pro Pro Ala Pro Asp His Leu Phe
35 40 45

Arg Pro Ile Ser Ala Glu Asp Glu Glu Gln Xaa Pro Thr Glu Ile Glu
50 55 60

Ser Leu Cys Met Asn Cys Tyr Cys Asn Gly Met Thr Arg Leu Leu Leu
65 70 75 80

Thr Lys Ile Pro Phe Phe Arg Glu Ile Ile Val Ser Ser Phe Ser Cys
85 90 95

Glu His Cys Gly Trp Asn Asn Thr Glu Ile Gln Ser Ala Gly Arg Ile
100 105 110

Gln Asp Gln Gly Val Arg Tyr Thr Leu Ser Val Xaa Ala Leu Glu Asp
115 120 125

Met Asn Arg Glu Val Val Lys Thr Asp Ser Ala Ala Thr Arg Ile Pro
130 135 140

Glu Leu Asp Phe Glu Ile Pro Ala Phe Ser Gln Lys Gly Ala Leu Thr
145 150 155 160

Thr Val Glu Gly Leu Ile Thr Arg Ala Ile Ser Gly Leu Glu Gln Asp
165 170 175

Gln Pro Ala Arg Arg Ala Asn Lys Asp Ala Thr Ala Glu Arg Ile Asp
180 185 190

Glu Phe Ile Val Lys Leu Lys Glu Leu Lys Gln Val Ala Ser Pro Phe
195 200 205

Thr Leu Ile Ile Asp Asp Pro Ser Gly Asn Ser Phe Val Glu Asn Pro
210 215 220

His Ala Pro Gln Lys Asp Asp Ala Leu Val Ile Thr His Tyr Asn Arg
225 230 235 240

Thr Arg Gln Gln Glu Glu Xaa Leu Gly Leu Gln Glu Glu Ala Pro Ala
245 250 255

Glu Ser Glu Asn Arg Ala Leu Ile Asn Val Gln Met Leu Asn Asn Ser
20 25 30

Gly Phe Ala Arg Gly Ile Ile Glu Glu Phe Gln Asn Asn Asn Asp Leu
35 40 45

Glu Leu Gln Gln Lys Cys Ile Asn Val Leu Ser Thr Tyr Ala Met Ile
50 55 60

Gln Gly Gln Ile Asp Ala Asn Lys Glu Ile Gly Gln Phe Phe Ile Gln
65 70 75 80

Thr Leu Thr Gln Leu Asn Val Arg Pro Glu Ile Leu Ile Glu Met Thr
85 90 95

Asn Ser Leu Phe Gln Phe Thr Gly Met Pro Leu Thr Ala Ile Met Glu
100 105 110

Pro Xaa Leu
115

<210> 1260
<211> 296
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (59)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (124)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (247)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (270)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (282)

Ala Gly Arg Ser Pro Phe Asp Ile Val Gly Ser Ser Asp Asn Pro Asp
115 120 125

Gln Asn Thr Glu Asp Tyr Leu Phe Gln Val Ile Leu Glu Lys Gln Ile
130 135 140

Arg Ile Pro Arg Ser Leu Ser Val Lys Ala Ala Ser Val Leu Lys Ser
145 150 155 160

Phe Leu Asn Lys Asp Pro Lys Glu Arg Leu Gly Cys His Pro Gln Thr
165 170 175

Gly Phe Ala Asp Ile Gln Gly His Pro Phe Phe Arg Asn Val Asp Trp
180 185 190

Asp Met Met Glu Gln Lys Gln Val Val Pro Pro Phe Lys Pro Asn Ile
195 200 205

Ser Gly Glu Phe Gly Leu Asp Asn Phe Asp Ser Gln Phe Thr Asn Glu
210 215 220

Pro Val Gln Leu Thr Pro Asp Asp Asp Asp Ile Val Arg Lys Ile Asp
225 230 235 240

Gln Ser Glu Phe Glu Gly Phe Glu Tyr Ile Asn Pro Leu Leu Met Ser
245 250 255

Ala Glu Glu Cys Val
260

<210> 1259
<211> 115
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (3)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (114)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1259
Phe Gly Xaa Gly Ala Leu Leu Lys Leu Ile Phe Pro Asp Gly Ala Phe
1 5 10 15

<220>
<221> SITE
<222> (63)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1257
Lys Pro Gln Pro Leu Ala Tyr Ser Ser Phe Asn Thr Arg Asp Leu Trp
1   5   10   15

Leu Ile Trp Gly Arg Lys Thr Leu Lys Val Ile Ser Leu Gly Gln Arg
            20   25   30

Pro Tyr Cys Thr Arg Gly Lys Lys Tyr Ile Leu His Leu Leu Leu Leu
        35   40   45

Gln Leu Cys Leu Lys Phe Ile Cys Leu Val Ile Leu Ser Thr Xaa Thr
    50   55   60

Asn Phe Leu Val Tyr Phe Lys His Leu Val Gly
65   70   75

<210> 1258
<211> 261
<212> PRT
<213> Homo sapiens

<400> 1258
Pro Ser Gly Ile Pro Gly Ser Thr His Ala Ser Glu Arg Lys Leu Pro
1   5   10   15

Glu Glu His Ala Arg Phe Tyr Ser Ala Glu Ile Ser Leu Ala Leu Asn
            20   25   30

Tyr Leu His Glu Arg Gly Ile Ile Tyr Arg Asp Leu Lys Leu Asp Asn
        35   40   45

Val Leu Leu Asp Ser Glu Gly His Ile Lys Leu Thr Asp Tyr Gly Met
    50   55   60

Cys Lys Glu Gly Leu Arg Pro Gly Asp Thr Thr Ser Thr Phe Cys Gly
65   70   75   80

Thr Pro Asn Tyr Ile Ala Pro Glu Ile Leu Arg Gly Glu Asp Tyr Gly
                85   90   95

Phe Ser Val Asp Trp Trp Ala Leu Gly Val Leu Met Phe Glu Met Met
            100   105   110

Val Thr Lys Met Glu Ser Ile Ala Ala Ala Thr Gln Trp Val Lys Glu
145 150 155 160

His Val Gly Asp Arg Gly Leu Trp Gly Leu Val Asn Asn Ala Gly Ile
165 170 175

Leu Thr Pro Ile Thr Leu Cys Xaa Trp Leu Asn Thr Glu Asp Ser Met
180 185 190

Asn Met Leu Lys Val Asn Leu Ile Gly Val Ile Gln Val Thr Leu Ser
195 200 205

Met Leu Pro Leu Val Arg Arg Ala Arg Gly Arg Ile Val Asn Val Ser
210 215 220

Ser Ile Leu Gly Arg Val Ala Phe Phe Val Gly Gly Tyr Cys Val Ser
225 230 235 240

Lys Tyr Gly Val Glu Ala Phe Ser Asp Ile Leu Arg Arg Glu Ile Gln
245 250 255

His Phe Gly Val Lys Ile Ser Ile Val Glu Pro Gly Tyr Phe Arg Thr
260 265 270

Gly Met Thr Asn Met Thr Gln Ser Leu Glu Arg Met Lys Gln Ser Trp
275 280 285

Lys Glu Ala Pro Lys His Ile Lys Glu Thr Tyr Gly Gln Gln Tyr Phe
290 295 300

Asp Ala Leu Tyr Asn Ile Met Lys Glu Gly Leu Leu Asn Cys Ser Thr
305 310 315 320

Asn Leu Asn Leu Val Thr Asp Cys Met Glu His Ala Leu Thr Ser Val
325 330 335

His Pro Arg Thr Arg Tyr Ser Ala Gly Trp Asp Ala Lys Phe Phe Phe
340 345 350

Ile Pro Leu Ser Tyr Leu Pro Thr Ser Leu Ala Asp Tyr Ile Leu Thr
355 360 365

Arg Ser Trp Pro Lys Pro Ala Gln Ala Val
370 375

<210> 1257
<211> 75
<212> PRT
<213> Homo sapiens

Ser Trp Trp Thr Asn Trp Val Ile Pro Ala Ile Ser Ala Val Ala Val
130 135 140

Ala Leu Met Tyr Arg Leu Tyr Met Ala Glu Asp
145 150 155

<210> 1256
<211> 378
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (116)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (184)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1256
Gln Ala Phe Ala Lys Ser Tyr Leu Gly Asp Thr Ile Glu Gly Thr Pro
1 5 10 15

Ala Gly Thr Gly Pro Glu Phe Pro Gly Arg Pro Thr Arg Pro Arg Arg
20 25 30

Lys Pro Thr Ala Ala Trp Ser Ala Lys Lys Ser Phe Gln Val Ser Arg
35 40 45

Thr Gly Leu Phe Leu Ser Lys Ser Gly Ser Thr Leu Thr Met Trp Leu
50 55 60

Tyr Leu Ala Ala Phe Val Gly Leu Tyr Tyr Leu Leu His Trp Tyr Arg
65 70 75 80

Glu Arg Gln Val Val Ser His Leu Gln Asp Lys Tyr Val Phe Ile Thr
85 90 95

Gly Cys Asp Ser Gly Phe Gly Asn Leu Leu Ala Arg Gln Leu Asp Ala
100 105 110

Arg Gly Leu Xaa Val Leu Ala Ala Cys Leu Thr Glu Lys Gly Ala Glu
115 120 125

Gln Leu Arg Gly Gln Thr Ser Asp Arg Leu Glu Thr Val Thr Leu Asp
130 135 140

Lys Asp Ser Glu Leu Asp Lys His Leu Glu Ser Arg Val Glu Glu Ile
325 330 335

Met Glu Lys Ser Gly Glu Glu Gly Met Pro Asp Leu Ala His Val Met
340 345 350

Arg Ile Leu Ser Ala Glu Asn Ile Pro Asn Leu Pro Pro Gly Gly Gly
355 360 365

Leu Ala Gly Xaa Arg Asn Val Ile Glu Ala Val Tyr Ser Arg Leu Asn
370 375 380

Pro His Arg Glu Ser Asp Gly Gly Ala Gly Asp Leu Glu Asp Pro Trp
385 390 395 400

<210> 1255
<211> 155
<212> PRT
<213> Homo sapiens

<400> 1255
Val Ala Arg Ser Ala Pro Pro Asp Gly Ala Val Cys Ala Gly Pro Gly
1 5 10 15

Ser Arg Arg Thr Glu Met Ala Glu Gln Ser Asp Glu Ala Val Lys Tyr
20 25 30

Tyr Thr Leu Glu Glu Ile Gln Lys His Asn His Ser Lys Ser Thr Trp
35 40 45

Leu Ile Leu His His Lys Val Tyr Asp Leu Thr Lys Phe Leu Glu Glu
50 55 60

His Pro Gly Gly Glu Glu Val Leu Arg Glu Gln Ala Gly Gly Asp Ala
65 70 75 80

Thr Glu Asn Phe Glu Asp Val Gly His Ser Thr Asp Ala Arg Glu Met
85 90 95

Ser Lys Thr Phe Ile Ile Gly Glu Leu His Pro Asp Asp Arg Pro Lys
100 105 110

Leu Asn Lys Pro Pro Glu Thr Leu Ile Thr Thr Ile Asp Ser Ser Ser
115 120 125

Met Glu Asp Ala His Thr Ala Val Val Gly Ile Pro His Gly Leu Glu
50 55 60

Asp Trp Ser Phe Phe Ala Val Tyr Asp Gly His Ala Gly Ser Arg Val
65 70 75 80

Ala Asn Tyr Cys Ser Thr His Leu Leu Glu His Ile Thr Thr Asn Glu
85 90 95

Asp Phe Arg Ala Ala Gly Lys Ser Gly Ser Ala Leu Glu Leu Ser Val
100 105 110

Glu Asn Val Lys Asn Gly Ile Arg Thr Gly Phe Leu Lys Ile Asp Glu
115 120 125

Tyr Met Arg Asn Phe Ser Asp Leu Arg Asn Gly Met Asp Arg Ser Gly
130 135 140

Ser Thr Ala Val Gly Val Met Ile Ser Pro Lys His Ile Tyr Phe Ile
145 150 155 160

Asn Cys Gly Asp Ser Arg Ala Val Leu Tyr Arg Asn Gly Gln Val Cys
165 170 175

Phe Ser Thr Gln Asp His Lys Pro Cys Asn Pro Arg Glu Lys Glu Arg
180 185 190

Ile Gln Asn Ala Gly Gly Ser Val Met Ile Gln Arg Val Asn Gly Ser
195 200 205

Leu Ala Val Ser Arg Ala Leu Gly Asp Tyr Asp Tyr Lys Cys Val Asp
210 215 220

Gly Lys Gly Pro Thr Glu Gln Leu Val Ser Pro Glu Pro Glu Val Tyr
225 230 235 240

Xaa Ile Leu Arg Ala Glu Glu Asp Glu Phe Ile Ile Leu Ala Cys Asp
245 250 255

Gly Ile Trp Asp Val Met Ser Asn Glu Glu Leu Cys Glu Tyr Val Lys
260 265 270

Ser Arg Leu Glu Val Ser Asp Asp Leu Glu Asn Val Cys Asn Trp Val
275 280 285

Val Asp Thr Cys Leu His Lys Gly Ser Arg Asp Asn Met Ser Ile Val
290 295 300

Leu Val Cys Phe Ser Asn Ala Pro Lys Val Ser Asp Glu Ala Val Lys
305 310 315 320

Ile Pro Ser Gly Ile Pro Asp Leu Pro Gln Asp Thr Phe Ile Gln Phe
580 585 590

Pro Gly Trp Thr Lys Gly Gln Val Trp Ile Asn Gly Phe Asn Leu Gly
595 600 605

Arg Tyr Trp Pro Ala Arg Gly Pro Gln Leu Thr Leu Phe Val Pro Gln
610 615 620

His Ile Leu Met Thr Ser Ala Pro Asn Thr Ile Thr Val Leu Glu Leu
625 630 635 640

Glu Trp Ala Pro Cys Ser Ser Asp Asp Pro Glu Leu Cys Ala Val Thr
645 650 655

Phe Val Asp Arg Pro Val Ile Gly Ser Ser Val Thr Tyr Asp His Pro
660 665 670

Ser Lys Pro Val Glu Lys Arg Leu Met Pro Pro Pro Pro Gln Lys Asn
675 680 685

Lys Asp Ser Trp Leu Asp His Val
690 695

<210> 1254
<211> 400
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (241)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (372)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1254
Thr Ser Ser Pro Ser Leu Ala Ser Asp Leu Leu Leu Asn Met Gly Ala
1 5 10 15

Phe Leu Asp Lys Pro Lys Thr Glu Lys His Asn Ala His Gly Ala Gly
20 25 30

Asn Gly Leu Arg Tyr Gly Leu Ser Ser Met Gln Gly Trp Arg Val Glu
35 40 45

Thr Glu Ala Val Ala Ser Ser Leu Tyr Asp Ile Leu Ala Arg Gly Ala
305 310 315 320

Ser Val Asn Leu Tyr Met Phe Ile Gly Gly Thr Asn Phe Ala Tyr Trp
325 330 335

Asn Gly Ala Asn Ser Pro Tyr Ala Ala Gln Pro Thr Ser Tyr Asp Tyr
340 345 350

Asp Ala Pro Leu Ser Glu Ala Gly Asp Leu Thr Glu Lys Tyr Phe Ala
355 360 365

Leu Arg Asn Ile Ile Gln Lys Phe Glu Lys Val Pro Glu Gly Pro Ile
370 375 380

Pro Pro Ser Thr Pro Lys Phe Ala Tyr Gly Lys Val Thr Leu Glu Lys
385 390 395 400

Leu Lys Thr Val Gly Ala Ala Leu Asp Ile Leu Cys Pro Ser Gly Pro
405 410 415

Ile Lys Ser Leu Tyr Pro Leu Thr Phe Ile Gln Val Lys Gln His Tyr
420 425 430

Gly Phe Val Leu Tyr Arg Thr Thr Leu Pro Gln Asp Cys Ser Asn Pro
435 440 445

Ala Pro Leu Ser Ser Pro Leu Asn Gly Val His Asp Arg Ala Tyr Val
450 455 460

Ala Val Asp Gly Ile Pro Gln Gly Val Leu Glu Arg Asn Asn Val Ile
465 470 475 480

Thr Leu Asn Ile Thr Gly Lys Ala Gly Ala Thr Leu Asp Leu Leu Val
485 490 495

Glu Asn Met Gly Arg Val Asn Tyr Gly Ala Tyr Ile Asn Asp Phe Lys
500 505 510

Gly Leu Val Ser Asn Leu Thr Leu Ser Ser Asn Ile Leu Thr Asp Trp
515 520 525

Thr Ile Phe Pro Leu Asp Thr Glu Asp Ala Val Arg Xaa His Leu Gly
530 535 540

Gly Trp Gly His Arg Asp Ser Gly His His Asp Glu Ala Trp Ala His
545 550 555 560

Asn Ser Ser Asn Tyr Thr Leu Pro Ala Phe Tyr Met Gly Asn Phe Ser
565 570 575

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Val Leu Leu Leu Leu Gly Pro Thr Arg Gly Leu Arg Asn Ala Thr Gln
        35                  40                  45

Arg Met Phe Glu Ile Asp Tyr Ser Arg Asp Ser Phe Leu Lys Asp Gly
    50                  55                  60

Gln Pro Phe Arg Tyr Ile Ser Gly Ser Ile His Tyr Ser Arg Val Pro
65                  70                  75                  80

Arg Phe Tyr Trp Lys Asp Arg Leu Leu Lys Met Lys Met Ala Gly Leu
                85                  90                  95

Asn Ala Ile Gln Thr Tyr Val Pro Trp Asn Phe His Glu Pro Trp Pro
            100                 105                 110

Gly Gln Tyr Gln Phe Ser Glu Asp His Asp Val Glu Tyr Phe Leu Arg
        115                 120                 125

Leu Ala His Glu Leu Gly Leu Leu Val Ile Leu Arg Pro Gly Pro Tyr
    130                 135                 140

Ile Cys Ala Glu Trp Glu Met Gly Gly Leu Pro Ala Trp Leu Leu Glu
145                 150                 155                 160

Lys Glu Ser Ile Leu Leu Arg Ser Ser Asp Pro Asp Tyr Leu Ala Ala
                165                 170                 175

Val Asp Lys Trp Leu Gly Val Leu Leu Pro Lys Met Lys Pro Leu Leu
            180                 185                 190

Tyr Gln Asn Gly Gly Pro Val Ile Thr Val Gln Val Glu Asn Glu Tyr
        195                 200                 205

Gly Ser Tyr Phe Ala Cys Asp Phe Asp Tyr Leu Arg Phe Leu Gln Lys
    210                 215                 220

Arg Phe Arg His His Leu Gly Asp Asp Val Val Leu Phe Thr Thr Asp
225                 230                 235                 240

Gly Ala His Lys Thr Phe Leu Lys Cys Gly Ala Leu Gln Gly Leu Tyr
                245                 250                 255

Thr Thr Val Asp Phe Gly Thr Gly Ser Asn Ile Thr Asp Ala Phe Leu
            260                 265                 270

Ser Gln Arg Lys Cys Glu Pro Lys Gly Pro Leu Ile Asn Ser Glu Phe
        275                 280                 285

Tyr Thr Gly Trp Leu Asp His Trp Gly Gln Pro His Ser Thr Ile Lys
    290                 295                 300
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165 170 175

Met Ile Pro Arg Asp Glu Pro Gly Ser Tyr Val Pro Trp Asn Val Pro
180 185 190

Ile

<210> 1252
<211> 51
<212> PRT
<213> Homo sapiens

<400> 1252
Gly Ser Ser Lys Gly Ile Phe Leu Leu Phe Ser Leu Phe Leu Gly Cys
1 5 10 15

Ser Lys Phe Ser Arg Ser Ser Ser Arg Ile Arg Lys Arg Ser Ile Val
20 25 30

Arg Asn Arg Phe Trp Val Leu Leu Lys Phe Ala Cys Gln His Cys Ile
35 40 45

Thr Phe Pro
50

<210> 1253
<211> 696
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (5)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (541)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1253
His Glu Arg Glu Xaa His Gly Leu Gly Ala Asp Cys Arg Ala Gly Arg
1 5 10 15

Leu Val Val Met Pro Gly Phe Leu Val Arg Ile Leu Leu Leu Leu Leu
20 25 30

35 40 45

<210> 1251
<211> 193
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (7)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (68)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1251
Lys Pro Gly Ser Thr Gly Xaa Val Arg Glu Gly Gln Pro Phe Glu Tyr
1 5 10 15

Phe Val Tyr Gly Ala Ala Cys Ser Glu Val Glu Ile Asp Cys Leu Thr
20 25 30

Gly Asp His Lys Asn Ile Arg Thr Asp Ile Val Met Asp Val Gly Cys
35 40 45

Ser Ile Asn Pro Ala Ile Asp Ile Gly Gln Ile Glu Gly Ala Phe Ile
50 55 60

Gln Gly Met Xaa Leu Tyr Thr Ile Glu Glu Leu Asn Tyr Ser Pro Gln
65 70 75 80

Gly Ile Leu His Thr Arg Gly Pro Asp Gln Tyr Lys Ile Pro Ala Ile
85 90 95

Cys Asp Met Pro Thr Glu Leu His Ile Ala Leu Leu Pro Pro Ser Gln
100 105 110

Asn Ser Asn Thr Leu Tyr Ser Ser Lys Gly Leu Gly Glu Ser Gly Val
115 120 125

Phe Leu Gly Cys Ser Val Phe Phe Ala Ile His Asp Ala Val Ser Ala
130 135 140

Ala Arg Gln Glu Arg Gly Leu His Gly Pro Leu Thr Leu Asn Ser Pro
145 150 155 160

Leu Thr Pro Glu Lys Ile Arg Met Ala Cys Glu Asp Lys Phe Thr Lys

Gly Pro Ile Ile Met Ser Val Ser Arg Thr Val Pro Trp Ser Ser His
50 55 60

Ile Pro Gly Pro Arg Leu Gly Pro Pro Ser Cys Val Leu
65 70 75

<210> 1249
<211> 100
<212> PRT
<213> Homo sapiens

<400> 1249
Asn Asn Ile Cys Ser Gln Met Val Phe Leu Ala Val Ser Pro Val Val
1 5 10 15

Ala Met Phe Arg Val Val Val Leu Ile Tyr Leu Gly Val His Lys Thr
20 25 30

Tyr Leu Ala Gly Leu Phe Lys Lys Phe Arg Phe Leu Ala Leu Tyr Pro
35 40 45

Gly Ile Ala Ser Gly Gly Met Gly Cys Gly Pro Gly Val Ile Thr Phe
50 55 60

Ile Asn Ser Gly Ser Glu Thr Thr Glu Arg Asp Cys Phe Ile Glu Trp
65 70 75 80

Glu Val Pro Arg Arg Lys Tyr Asn Ser Val Leu Ser Gly Gly Lys Trp
85 90 95

Thr Leu Cys Thr
100

<210> 1250
<211> 47
<212> PRT
<213> Homo sapiens

<400> 1250
Ser Asn Leu Met Leu Thr Asn Leu Leu Cys Leu Leu Cys Cys Phe Leu
1 5 10 15

Val Pro Ala Ser Ala Ala Leu Gln Met Gln Thr Ile Leu Ser Tyr Leu
20 25 30

Ala Gly Leu Leu Phe Tyr Phe Val Gly Trp Met Leu Pro Ser Ser

Val Ala Ser Val Thr Met Lys Xaa Val Ala Phe Trp Arg Arg Asn Ser
180 185 190

Val Thr Xaa Tyr Asn Xaa Gly Trp Leu Gln Ile Gln Gly Pro Asp Pro
195 200 205

Ile Phe Pro Thr Lys Asn Phe Xaa Leu Ala Arg Ser Phe Asn Phe
210 215 220

<210> 1247
<211> 54
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (7)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1247
Leu Glu Lys Lys Asp Ile Xaa Asn Met Leu Met Trp Arg Ser Pro Ser
1 5 10 15

Tyr Pro Lys Gly Glu Lys Gln Gly Lys Asp Pro Leu His Ser Lys Phe
20 25 30

Pro Leu Gly Ser Pro Arg Ala His Cys Pro Gln Met His Ile Ile Ser
35 40 45

Ala Glu Ile Gln Lys Pro
50

<210> 1248
<211> 77
<212> PRT
<213> Homo sapiens

<400> 1248
Arg Phe Leu Ser Phe Val Phe Gly Leu Asn Phe Ser Pro Arg Ser Leu
1 5 10 15

Phe Val Ser Ser Phe Cys Phe Ser Thr Val Leu Val Ile Thr Leu Cys
20 25 30

Trp Arg Glu Pro Val Ser Leu Trp Pro Pro Leu Pro Lys Leu Lys Gln
35 40 45

<222> (184)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (195)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (198)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (216)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1246
Lys Gln Ala Gly Cys Ser Ala Ala Pro Gly Ala Val Pro Pro Pro Glu
1 5 10 15

Ala Asp Ser Thr Ser Ala Gly Met Ser Arg Arg Pro Cys Ser Cys Ala
20 25 30

Leu Arg Pro Pro Arg Cys Ser Cys Ser Ala Ser Pro Ser Ala Val Thr
35 40 45

Ala Ala Gly Arg Pro Arg Pro Ser Asp Ser Cys Lys Glu Glu Ser Ser
50 55 60

Thr Leu Ser Val Lys Met Lys Cys Asp Phe Asn Cys Asn His Val His
65 70 75 80

Ser Gly Leu Lys Leu Val Lys Pro Asp Asp Ile Gly Arg Leu Val Ser
85 90 95

Tyr Thr Pro Ala Tyr Leu Glu Gly Ser Cys Lys Asp Cys Ile Lys Asp
100 105 110

Tyr Glu Arg Leu Ser Cys Ile Gly Ser Pro Ile Val Ser Pro Arg Ile
115 120 125

Val Glu Leu Glu Thr Glu Ser Lys Arg Leu His Asn Lys Glu Asn Gln
130 135 140

His Val Gln Gln Thr Leu Asn Ser Thr Asn Glu Ile Glu Ala Leu Glu
145 150 155 160

Thr Ser Arg Leu Tyr Glu Asp Ser Ala Ile Pro Gln Phe Leu Tyr Lys
165 170 175

Pro Glu Pro
50

<210> 1245
<211> 111
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (48)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (97)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1245
Asn Ala Val Phe Ser Ile Thr Asp Leu Ser Leu Pro Asn Tyr Leu Met
1 5 10 15

Ala Ser Ser Val Gly Leu Leu Pro Thr Gln Leu Leu Asn Ser Tyr Leu
20 25 30

Gly Thr Thr Leu Arg Thr Met Glu Asp Val Ile Ala Glu Gln Ser Xaa
35 40 45

Ser Gly Tyr Phe Val Phe Cys Leu Gln Ile Ile Ile Ser Ile Gly Leu
50 55 60

Met Phe Tyr Val Val His Arg Ala Gln Val Glu Leu Asn Ala Ala Ile
65 70 75 80

Val Ala Cys Glu Met Gly Thr Gly Asn Leu Leu Trp Leu Lys Gly Asn
85 90 95

Xaa Pro Asn Thr Ser Gly Leu Phe His Ser Thr Thr Arg Gly Pro
100 105 110

<210> 1246
<211> 223
<212> PRT
<213> Homo sapiens

<220>
<221> SITE

Leu Gln Tyr Ser Ser Leu Leu His His Phe Cys Ile Asn Val Glu Thr
115 120 125

Lys His Gln Asn Leu
130

<210> 1243
<211> 70
<212> PRT
<213> Homo sapiens

<400> 1243
Pro Ala Arg Cys Met Pro Gly Pro Trp Pro Pro Tyr Leu Ala Ala Ser
1 5 10 15

Cys Asp Ser Glu Ile His Pro Ser Arg Trp Gln Leu Leu Gly Leu Asn
20 25 30

Leu Leu Glu Lys Lys Val Pro Ser Gln Glu Asn Ser Phe Tyr Ser Gly
35 40 45

Arg Asn Ala Ser Glu Thr Pro Gln Gly Ser Leu Asn Thr Gln Leu Gln
50 55 60

Gly Arg Ala Cys Gly Gly
65 70

<210> 1244
<211> 51
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (37)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1244
Val Tyr Thr Leu Pro Ser His Lys Pro Ile Phe Lys Arg Ser Asn Ala
1 5 10 15

Met Thr Ala Ile Leu Gln Glu Lys Lys Lys Leu Tyr Ser Cys Gly Asp
20 25 30

Val Pro His Thr Xaa His Gln Leu Gln Gly Val Cys Pro Leu Gln Thr
35 40 45

145 150 155 160

Leu Pro Gly Gln Asn Leu Glu Ser Leu Glu Ser Thr Ser Phe Xaa Ser
165 170 175

Gln Phe Leu Gly
180

<210> 1241
<211> 19
<212> PRT
<213> Homo sapiens

<400> 1241
Ser Arg Asp Gly Val Ser Pro His Trp Pro Gly Trp Ser Gln Thr Pro
1 5 10 15

Asp Leu Lys

<210> 1242
<211> 133
<212> PRT
<213> Homo sapiens

<400> 1242
Ala Phe Asp Leu Cys Tyr Leu Tyr Ser Trp Asp Leu Ile Arg Lys Met
1 5 10 15

Cys Phe Val Val Leu Asp Lys Leu Phe His Pro Leu Phe Pro Pro Gln
20 25 30

Asn Thr His Thr Glu Gln Thr Pro Phe His Lys Ser Pro His Ile His
35 40 45

Trp Gln Ser Pro Phe Ala Ser Trp Ser Pro Cys Val Pro Pro Lys Ser
50 55 60

Ile Met Phe Glu Ser Leu Trp Trp Met Leu Trp Gly Lys Val Met Ile
65 70 75 80

Tyr Thr Glu Ala Thr Ala Lys Ser Val Val Gln Pro Leu Ser Pro Val
85 90 95

Lys Tyr Cys Ile Thr Pro Phe Gly Thr Thr Glu Lys Thr Val Ala Phe
100 105 110

<210> 1240
<211> 180
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (4)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (7)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (175)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1240
Thr Thr Ser Xaa Glu Arg Xaa Leu Thr Gly Pro Glu Pro Leu Arg Arg
1 5 10 15

Arg Arg Leu Cys Ser Arg Gln Leu Ala Pro Ala Ala Met Pro Thr Thr
20 25 30

Ile Glu Arg Glu Phe Glu Glu Leu Asp Thr Gln Arg Arg Trp Gln Pro
35 40 45

Leu Tyr Leu Glu Ile Arg Asn Glu Ser His Asp Tyr Pro His Arg Val
50 55 60

Ala Lys Phe Pro Glu Asn Arg Asn Arg Asn Arg Tyr Arg Asp Val Ser
65 70 75 80

Pro Tyr Asp His Ser Arg Val Lys Leu Gln Asn Ala Glu Asn Asp Tyr
85 90 95

Ile Asn Ala Ser Leu Val Asp Ile Glu Glu Ala Gln Arg Ser Tyr Ile
100 105 110

Leu Thr Gln Gly Pro Leu Pro Asn Thr Cys Cys His Phe Trp Leu Met
115 120 125

Val Trp Gln Gln Lys Thr Lys Ala Val Val Met Leu Asn Arg Ile Val
130 135 140

Glu Lys Glu Ser Ser Gly Glu Thr Glu Gln Tyr Leu Thr Phe Ile Ile

Ser Arg Ala Val Ala Ala Ala Ala Leu Pro Arg Ser Gly Arg Val Gly
20 25 30

Ala Ser Gly Pro Ala Ser Ala Pro Leu His Pro Arg Leu Ala Glu Pro
35 40 45

Gly Phe Ser Ala Ala Ala Gly Leu Val Arg Arg Ser Gln Val Arg Gly
50 55 60

Val His Pro Leu Gly Arg Val Leu Gly Ala Arg Leu Gly Gln Arg Val
65 70 75 80

Val Leu Val Ala Leu Ala Gly Arg Gly Ala Ala Ala Val Pro Ala Leu
85 90 95

His Ala Arg Gln Leu Pro Ala Arg Leu Gln Leu Arg Arg Leu Arg Thr
100 105 110

Ala Val His Cys Ala Leu Leu Pro Pro Gly Glu Trp Ala Asp Leu Phe
115 120 125

Gln Ala Ala Gly Ala Lys Tyr Val Val Leu Thr Thr Lys His His Glu
130 135 140

Gly Phe Thr Asn Trp Pro Ser Pro Val Ser Trp Asn Trp Asn Ser Lys
145 150 155 160

Asp Val Gly Pro His Arg Asp Leu Val Gly Glu Leu Gly Thr Ala Leu
165 170 175

Arg Lys Arg Asn Ile Arg Tyr Gly Leu Tyr His Ser Leu Leu Glu Trp
180 185 190

Phe His Pro Leu Tyr Leu Leu Asp Lys Lys Asn Gly Phe Lys Thr Gln
195 200 205

His Phe Val Ser Ala Lys Thr Met Pro Glu Leu Tyr Asp Leu Val Asn
210 215 220

Ser Tyr Lys Pro Asp Leu Ile Trp Ser Asp Gly Glu Trp Glu Cys Pro
225 230 235 240

Asp Thr Tyr Trp Asn Ser Thr Asn Phe Leu Ser Trp Xaa Tyr Asn Asp
245 250 255

Ser Pro Xaa Lys Val Ser Val Gly Ser Leu Arg Ala Arg Thr Leu Phe
260 265 270

Tyr Ser Thr Trp Glu Leu Ser Val Cys His Met
275 280

Val Ile Asp Ala Phe Arg Leu Ile Asn Ala Asn Met Met Val Leu Gly
165 170 175

His Glu Pro Arg Gln Thr Thr Ser Asn Leu Gly His Leu Asn Lys Pro
180 185 190

Ser Ile Gln Ala Leu Ile His Gly Leu Asn Arg His Tyr Tyr Ser Ile
195 200 205

Thr Ile Asn Tyr Arg Lys Asn Glu Leu Glu Gln Lys Met Leu Leu Asn
210 215 220

Leu His Lys Lys Ser Trp Met Glu Gly Leu Thr Leu Gln Asp Tyr Ser
225 230 235 240

Glu His Cys Lys His Asn Glu Ser Val Val Lys Glu Met Leu Glu Leu
245 250 255

Ala Lys Asn Tyr Asn Lys Ala Val Glu Glu Glu Asp Lys Met Thr Pro
260 265 270

Glu Gln Leu Ala Ile Lys Asn Val Gly Lys Gln Asp Pro Lys Arg His
275 280 285

Leu Glu Glu His Val Asp Val Leu Met Thr Ser Asn Ile Val Gln Cys
290 295 300

Leu Ala Ala Met Leu Asp Thr Val Val Phe Lys
305 310 315

<210> 1239
<211> 283
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (253)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (259)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1239
Leu Arg Gly Ser Asp Ala Gly Ser Gly Asp Glu Val Ala Ala Gly Gly
1 5 10 15

```
Pro Gly Thr Met Gly Ala Leu Tyr Ile Glu Arg Pro Ala Asp Val Glu
            180                 185                 190

Glu Gly Phe Ser Ile Gln Ala Pro Leu Val Tyr His Phe Gly Ser Thr
        195                 200                 205

Thr Pro Gly Thr Asn Ile Lys Leu Tyr Asn Lys Ile Thr Ser Arg Leu
    210                 215                 220

Ala Asp Val Phe Asn Gln Arg Cys Glu Val Asn Arg Arg His Leu
225                 230                 235



<210> 1238
<211> 315
<212> PRT
<213> Homo sapiens

<400> 1238
Leu Leu Thr Arg Asn Met Asp Arg Leu Leu Arg Leu Gly Gly Gly Met
  1               5                  10                  15

Pro Gly Leu Gly Gln Gly Pro Pro Thr Asp Ala Pro Ala Val Asp Thr
            20                  25                  30

Ala Glu Gln Val Tyr Ile Ser Ser Leu Ala Leu Leu Lys Met Leu Lys
        35                  40                  45

His Gly Arg Ala Gly Val Pro Met Glu Val Met Gly Leu Met Leu Gly
    50                  55                  60

Glu Phe Val Asp Asp Tyr Thr Val Arg Val Ile Asp Val Phe Ala Met
 65                  70                  75                  80

Pro Gln Ser Gly Thr Gly Val Ser Val Glu Ala Val Asp Pro Val Phe
                 85                  90                  95

Gln Ala Lys Met Leu Asp Met Leu Lys Gln Thr Gly Arg Pro Glu Met
            100                 105                 110

Val Val Gly Trp Tyr His Ser His Pro Gly Phe Gly Cys Trp Leu Ser
        115                 120                 125

Gly Val Asp Ile Asn Thr Gln Gln Ser Phe Glu Ala Leu Ser Glu Arg
    130                 135                 140

Ala Val Ala Val Val Val Asp Pro Ile Gln Ser Val Lys Gly Lys Val
145                 150                 155                 160
```

1 5 10 15

Leu Ser Gly Lys Leu Pro Val Tyr Ile Leu His Leu Val Tyr Arg Leu
20 25 30

Phe Cys Leu Ala His Lys Ala Phe Tyr Tyr Leu Ser Leu Cys Gln His
35 40 45

Leu Arg Ile Lys Asn Phe Pro Asp Ile Gln Ile Ser Asp Phe Asn
50 55 60

<210> 1237
<211> 239
<212> PRT
<213> Homo sapiens

<400> 1237
Val Tyr Leu Leu Gly Ser Trp Leu Arg Arg His Ser Ser Tyr Thr Glu
1 5 10 15

Glu Met Gly Glu Glu Ala Asn Asp Asp Lys Lys Pro Thr Thr Lys Phe
20 25 30

Glu Leu Glu Arg Glu Thr Glu Leu Arg Phe Glu Val Glu Ala Ser Gln
35 40 45

Ser Val Gln Leu Glu Leu Leu Thr Gly Met Ala Glu Ile Phe Gly Thr
50 55 60

Glu Leu Thr Arg Asn Lys Lys Phe Thr Phe Asp Ala Gly Ala Lys Val
65 70 75 80

Ala Val Phe Thr Trp His Gly Cys Ser Val Gln Leu Ser Gly Arg Thr
85 90 95

Glu Val Ala Tyr Val Ser Lys Asp Thr Pro Met Leu Leu Tyr Leu Asn
100 105 110

Thr His Thr Ala Leu Glu Gln Met Arg Arg Gln Ala Glu Lys Glu Glu
115 120 125

Glu Arg Gly Pro Arg Val Met Val Val Gly Pro Thr Asp Val Gly Lys
130 135 140

Ser Thr Val Cys Arg Leu Leu Leu Asn Tyr Ala Val Arg Leu Gly Arg
145 150 155 160

Arg Pro Thr Tyr Val Glu Leu Asp Val Gly Gln Gly Ser Val Ser Ile
165 170 175

Glu Lys Pro Val Tyr Lys Asn Leu Gln Leu Phe Met Glu Asn Lys Asp
85 90 95

Pro Arg Asp Asp Leu Phe Asp Arg Leu Thr Thr Thr Ser Leu Asn Lys
100 105 110

His Leu Gln Glu Leu Met Asp Gly Leu Thr Ala Lys Val Phe Arg Thr
115 120 125

Tyr Asn Ala Ser Ile Thr Leu Gln Glu Gln Leu Arg Ala Leu Thr Arg
130 135 140

Ala Glu Asp Ser Ile Ala Ala Lys Ile Leu Ser Tyr Asn Arg Ala Asn
145 150 155 160

Arg Val Val Ala Ile Leu Cys Asn His Gln Arg Ala Thr Pro Ser Thr
165 170 175

Phe Glu Lys Ser Met Gln Asn Leu Gln Thr Lys Ile Gln Ala Lys Lys
180 185 190

Glu Gln Val Ala Glu Ala Arg Ala Glu Leu Arg Arg Ala Arg Ala Glu
195 200 205

His Lys Ala Gln Gly Asp Gly Lys Ser Arg Ser Val Leu Glu Lys Lys
210 215 220

Arg Xaa Leu Leu Glu Lys Leu Gln Glu Gln Leu Ala Gln Leu Ser Val
225 230 235 240

Gln Ala Thr Asp Lys Glu Glu Asn Lys Gln Val Ala Leu Gly Thr Ser
245 250 255

Lys Leu Asn Tyr Leu Asp Pro Arg Ile Ser Ile Ala Trp Cys Lys Arg
260 265 270

Phe Arg Val Pro Val Glu Lys Ile Tyr Ser Lys Thr Gln Arg Glu Arg
275 280 285

Phe Ala Trp Ala Leu Ala Met Ala Gly Glu Asp Phe Glu Phe
290 295 300

<210> 1236
<211> 63
<212> PRT
<213> Homo sapiens

<400> 1236
Ala Val Leu Val Ser Leu Glu Tyr Leu Ser Asp Arg Ile Lys Leu Lys

Pro Val Leu Lys Pro His Leu Glu His Leu Val Ala Asp Ser His Glu
145 150 155 160

Ser Thr Gln Arg Cys Val Ala Glu Ile Ile Ala Gly Leu Ile Arg Gly
165 170 175

Ser Lys His Trp Thr Phe Glu Lys Val Glu Lys Leu Trp Glu Leu Leu
180 185 190

Cys Pro Leu Leu Arg Thr Ala Leu Ser Asn Ile Thr Val Glu Thr Tyr
195 200 205

Asn Asp Trp Gly Ala Cys Ile Ala Thr Ser Cys Glu Ser Arg Asp Pro
210 215 220

Xaa Glu Thr Ser Leu Ala Phe
225 230

<210> 1235
<211> 302
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (2)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (226)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1235
Arg Xaa Gly Ile Pro Gly Ser Thr His Ala Ser Gly Ala Val Ala Leu
1 5 10 15

Tyr Phe Ile Asp Lys Leu Ala Leu Arg Ala Gly Asn Glu Lys Glu Asp
20 25 30

Gly Glu Ala Ala Asp Thr Val Gly Cys Cys Ser Leu Arg Val Glu His
35 40 45

Val Gln Leu His Pro Glu Ala Asp Gly Cys Gln His Val Val Glu Phe
50 55 60

Asp Phe Leu Gly Lys Asp Cys Ile Arg Tyr Tyr Asn Arg Val Pro Val
65 70 75 80

370 375 380

Arg Ser Gly Glu Ala Ala Ala Lys Leu Lys Arg Val Thr Ile Pro Ser
385 390 395 400

Asn Thr Ile Ser Val Asn Gly Arg Ser Arg Leu Ser His Ser Met Ser
405 410 415

Pro Asp Ala Gln Asp Gly His
420

<210> 1234
<211> 231
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (225)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1234
Thr Ala Lys Lys Asn His Lys Lys Leu Thr Ile Asn Pro Cys Glu Ile
1 5 10 15

Ser Gly Cys Pro Lys Pro Thr Gln Ile Ile Ala Gly Asp Arg Pro Asp
20 25 30

Asn His Trp Leu His Tyr Asp Ser Lys Thr Ile Pro Arg Thr Lys Lys
35 40 45

Glu Trp Glu Ser Ser Cys Phe Val Glu Lys Thr His Trp Gly Tyr Tyr
50 55 60

Thr Trp Pro Lys Asn Met Val Val Tyr Ala Gly Val Glu Glu Gln Pro
65 70 75 80

Lys Leu Gly Arg Ser Arg Glu Asp Met Thr Glu Ala Glu Gln Ile Ile
85 90 95

Phe Asp His Phe Ser Asp Pro Lys Phe Val Glu Gln Leu Ile Thr Phe
100 105 110

Leu Ser Leu Glu Asp Arg Lys Gly Lys Asp Lys Phe Asn Pro Arg Arg
115 120 125

Phe Cys Leu Phe Lys Gly Ile Phe Arg Asn Phe Asp Asp Ala Phe Leu
130 135 140

100 105 110

Ala Met Val Ser Pro Leu Lys Pro Ala Pro Lys Met Thr Arg Asp Thr
115 120 125

Gly Thr Ala Pro Phe Ala Pro Asn Leu Glu Glu Ile Asn Asn Ile Leu
130 135 140

Glu Ser Lys Phe Lys Ser Arg Ala Ser Asn Ala Gln Ala Lys Pro Ser
145 150 155 160

Ser Phe Phe Leu Gln Met Gln Lys Arg Val Ser Gly His Tyr Val Thr
165 170 175

Ser Ala Ala Ala Lys Ser Val His Ala Ala Pro Asn Pro Ala Pro Lys
180 185 190

Glu Leu Thr Asn Lys Glu Ala Glu Arg Asp Met Leu Pro Ser Pro Glu
195 200 205

Gln Thr Leu Ser Pro Leu Ser Lys Met Pro His Ser Val Pro Gln Pro
210 215 220

Leu Val Glu Lys Thr Asp Asp Asp Val Ile Gly Gln Ala Pro Ala Glu
225 230 235 240

Ala Ser Pro Pro Pro Ile Ala Pro Lys Pro Val Thr Ile Pro Ala Ser
245 250 255

Gln Val Ser Thr Gln Asn Leu Lys Thr Leu Lys Thr Phe Gly Ala Pro
260 265 270

Arg Pro Tyr Ser Ser Ser Gly Pro Ser Pro Phe Ala Leu Ala Val Val
275 280 285

Lys Arg Ser Gln Ser Phe Ser Lys Glu Arg Thr Glu Ser Pro Ser Ala
290 295 300

Ser Ala Leu Val Gln Pro Pro Ala Asn Thr Glu Glu Gly Lys Thr His
305 310 315 320

Ser Val Asn Lys Phe Val Asp Ile Pro Gln Leu Gly Val Ser Asp Lys
325 330 335

Glu Asn Asn Ser Ala His Asn Glu Gln Asn Ser Gln Ile Pro Thr Pro
340 345 350

Thr Asp Gly Pro Ser Phe Thr Val Met Arg Gln Ser Ser Leu Thr Phe
355 360 365

Gln Ser Ser Asp Pro Glu Gln Met Arg Gln Ser Leu Leu Thr Ala Ile

<210> 1232
<211> 69
<212> PRT
<213> Homo sapiens

<400> 1232
Asn Gln His Lys Glu Tyr Asp Lys Thr Pro Val Gly Asn Pro Glu Cys
1 5 10 15

Ser Gly Pro Ser Cys Gly Leu Phe Tyr Gly Phe Met Lys Gly Pro Cys
20 25 30

Pro His Gly Gly Asp His Gly Leu Ala Cys Gly Val Leu Gly Asp Gly
35 40 45

Cys Leu Leu Ser Ser Ser Pro His Pro Ala Ser Cys Trp His Leu Gly
50 55 60

Glu Glu Ser Ser Lys
65

<210> 1233
<211> 423
<212> PRT
<213> Homo sapiens

<400> 1233
Leu Tyr Arg Gln Asp Tyr Asn Pro Lys Pro Lys Pro Ser Asn Glu Ile
1 5 10 15

Thr Arg Glu Tyr Ile Pro Lys Ile Gly Met Thr Thr Tyr Lys Ile Val
20 25 30

Pro Pro Lys Ser Leu Glu Ile Ser Lys Asp Trp Gln Ser Glu Thr Ile
35 40 45

Glu Tyr Lys Asp Asp Gln Asp Met His Ala Leu Gly Lys Lys His Thr
50 55 60

His Glu Asn Val Lys Glu Thr Ala Ile Gln Thr Glu Asp Ser Ala Ile
65 70 75 80

Ser Glu Ser Pro Glu Glu Pro Leu Pro Asn Leu Lys Pro Lys Pro Asn
85 90 95

Leu Arg Thr Glu His Gln Val Pro Ser Ser Val Ser Ser Pro Asp Asp

```
Ala Ala Ile Val His Asn Val Asp Ser Asp Asp Leu Ile Ser Met Gly
        35                  40                  45

Ser Asn Asp Ile Glu Val Leu Lys Lys Ile Asp Ile Pro Ser Val Phe
    50                  55                  60

Ile Gly Glu Ser Ser Ala Asn Ser Leu Lys Asp Glu Phe Thr Tyr Glu
65                  70                  75                  80

Lys Gly Gly His Leu Ile Leu Val Pro Glu Phe Ser Leu Pro Leu Glu
                85                  90                  95

Tyr Tyr Leu Ile Pro Phe Leu Ile Ile Val Gly Ile Cys Leu Ile Leu
            100                 105                 110

Ile Val Ile Phe Met Ile Thr Lys Phe Val Gln Asp Arg His Arg Ala
        115                 120                 125

Arg Arg Asn Arg Leu Arg Lys Asp Gln Leu Lys Lys Leu Pro Val His
    130                 135                 140

Lys Phe Lys Lys Gly Asp Glu Tyr Asp Val Cys Ala Ile Cys Leu Asp
145                 150                 155                 160

Glu Tyr Glu Asp Gly Asp Lys Leu Arg Ile Leu Pro Cys Ser His Ala
                165                 170                 175

Tyr His Cys Lys Cys Val Asp Pro Trp Leu Thr Lys Thr Lys Lys Thr
            180                 185                 190

Cys Pro Val Cys Lys Gln Lys Val Val Pro Ser Gln Gly Asp Ser Asp
        195                 200                 205

Ser Asp Thr Asp Ser Ser Gln Glu Glu Asn Glu Val Thr Glu His Thr
    210                 215                 220

Pro Leu Leu Arg Pro Leu Ala Ser Val Ser Ala Gln Ser Phe Gly Ala
225                 230                 235                 240

Leu Ser Glu Ser Arg Ser His Gln Asn Met Thr Glu Ser Ser Asp Tyr
                245                 250                 255

Glu Glu Asp Asp Asn Glu Asp Thr Asp Ser Ser Asp Ala Glu Asn Glu
            260                 265                 270

Ile Asn Glu His Asp Val Val Val Gln Leu Gln Pro Asn Gly Glu Arg
        275                 280                 285

Asp Tyr Asn Ile Ala Asn Thr Val
    290                 295
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Trp Cys Ser Asp Gly Phe Glu Phe Cys Cys Asp Asn Gly Glu Arg Leu
115 120 125

Arg Val Thr Phe Ala Leu Asp Cys Cys Asp Arg Glu Ala Leu His Trp
130 135 140

Ala Val Thr Thr Gly Gly Phe Asn Ser Glu Thr Val Gln Asp Val Met
145 150 155 160

Leu Gly Ala Val Glu Arg Arg Phe Gly Asn Asp Leu Pro Ser Ser Pro
165 170 175

Val Glu Trp Leu Thr Asp Asn Gly Ser Cys Tyr Arg Ala Asn Glu Thr
180 185 190

Arg Gln Phe Ala Arg Met Leu Gly Leu Glu Pro Lys Asn Thr Ala Val
195 200 205

Arg Ser Pro Glu Ser Asn Gly Ile Ala Glu Ser Phe Val Lys Thr Ile
210 215 220

Lys Arg Asp Tyr Ile Ser Ile Met Pro Lys Pro Asp Gly Leu Thr Ala
225 230 235 240

Ala Lys Asn Leu Ala Glu Ala Phe Glu His Tyr Asn Xaa Trp His Pro
245 250 255

His Ser Ala Leu Gly Tyr Arg Ser Pro Arg Glu Tyr Leu Arg His Gly
260 265 270

Leu Val Met Gly
275

<210> 1231
<211> 296
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (6)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1231
Lys Thr Ile His Leu Xaa Thr Phe Ile Val Leu Ile Arg Arg Leu Asp
1 5 10 15

Cys Asn Phe Asp Ile Lys Val Leu Asn Ala Gln Arg Ala Gly Tyr Lys
20 25 30

Leu Gly Arg Ile Thr Glu Asn Thr Ser Gln Tyr Gln Gly Val Val Val
180 185 190

Tyr Ser Met Ala Asp Ile Pro Leu Gly Phe Gly Val Ala Ala Lys Ser
195 200 205

Thr Gln Asp Cys Arg Lys Val Asp Pro Met Ala Ile Val Val Phe His
210 215 220

Gln Ala Asp Ile Gly Glu Tyr Val Arg His Glu Glu Thr Leu Thr
225 230 235

<210> 1230
<211> 276
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (57)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (253)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1230
Ser Ala Val Val Ser Gly Cys Arg Val Arg Ser Cys Thr Ser Phe Ser
1 5 10 15

Asp Glu Pro Met Thr Gly Trp Met Ala Ala Ala Val Val Thr Leu Met
20 25 30

Ile Arg Met Cys Phe Ser Val Tyr Thr Met Leu Ser Glu Ser Cys Gln
35 40 45

Arg Met Val Ile Val Gly Tyr Gly Xaa Leu Leu Arg Arg Gln Ala Glu
50 55 60

Leu Asp Gly Met Pro Ala Ile Asn Ala Lys Arg Val Tyr Arg Ile Met
65 70 75 80

Arg Gln Asn Ala Leu Leu Leu Glu Arg Lys Pro Ala Val Pro Pro Ser
85 90 95

Lys Arg Ala His Thr Gly Arg Val Ala Val Lys Glu Ser Asn Gln Arg
100 105 110

Met Leu Glu Arg Leu Leu Gln Leu Gly Pro Ser Ala Cys Leu Pro Gly
420 425 430

Glu Pro Xaa Gly Pro Ser Val Glu Tyr Pro Lys Ala Arg Ala Asp Gly
435 440 445

Ala Asn Glu Asp Ser Arg Arg Glu Gly Pro Arg Asp
450 455 460

<210> 1229
<211> 239
<212> PRT
<213> Homo sapiens

<400> 1229
Ala Arg Gly Arg Leu Ala Phe Pro Cys Gly Arg Pro Asp Tyr Trp Ala
1 5 10 15

Leu Ala Arg Arg Thr Ile Gly Thr Gly Leu Glu Arg Lys Ala Leu Gly
20 25 30

Leu Pro Gly Ser Ser Glu Arg Pro Thr Ser Val Ser Ser Tyr Gln Gly
35 40 45

Thr Arg Ile Arg Cys Ser Asn Pro Gly Gly Lys Met Arg Pro Leu Thr
50 55 60

Glu Glu Glu Thr Arg Val Met Phe Glu Lys Ile Ala Lys Tyr Ile Gly
65 70 75 80

Glu Asn Leu Gln Leu Leu Val Asp Arg Pro Asp Gly Thr Tyr Cys Phe
85 90 95

Arg Leu His Asn Asp Arg Val Tyr Tyr Val Ser Glu Lys Ile Met Lys
100 105 110

Leu Ala Ala Asn Ile Ser Gly Asp Lys Leu Val Ser Leu Gly Thr Cys
115 120 125

Phe Gly Lys Phe Thr Lys Thr His Lys Phe Arg Leu His Val Thr Ala
130 135 140

Leu Asp Tyr Leu Ala Pro Tyr Ala Lys Tyr Lys Val Trp Ile Lys Pro
145 150 155 160

Gly Ala Glu Gln Ser Phe Leu Tyr Gly Asn His Val Leu Lys Ser Gly
165 170 175

Pro Trp Xaa Leu Ser Val Thr Met Ser Tyr Leu Glu Ile Tyr Gln Glu
145 150 155 160

Lys Val Leu Asp Leu Leu Asp Pro Ala Ser Gly Asp Leu Val Ile Arg
165 170 175

Glu Asp Cys Arg Gly Asn Ile Leu Ile Pro Gly Leu Ser Gln Lys Pro
180 185 190

Ile Ser Ser Phe Ala Asp Phe Glu Arg His Phe Leu Pro Ala Ser Arg
195 200 205

Asn Arg Thr Val Gly Ala Thr Arg Leu Asn Gln Arg Ser Ser Arg Ser
210 215 220

His Ala Val Leu Leu Val Lys Val Asp Gln Arg Glu Arg Leu Ala Pro
225 230 235 240

Phe Arg Gln Arg Glu Gly Lys Leu Tyr Leu Ile Asp Leu Ala Gly Ser
245 250 255

Glu Asp Asn Arg Arg Thr Gly Asn Lys Gly Leu Arg Leu Lys Glu Ser
260 265 270

Gly Ala Ile Asn Thr Ser Leu Phe Val Leu Gly Lys Val Val Asp Ala
275 280 285

Leu Asn Gln Gly Leu Pro Arg Val Pro Tyr Arg Asp Ser Lys Leu Thr
290 295 300

Arg Leu Leu Gln Asp Ser Leu Gly Gly Ser Ala His Ser Ile Leu Ile
305 310 315 320

Ala Asn Ile Ala Pro Glu Arg Arg Phe Tyr Leu Asp Thr Val Ser Ala
325 330 335

Leu Asn Phe Ala Ala Arg Ser Lys Glu Val Ile Asn Arg Pro Phe Thr
340 345 350

Asn Glu Ser Leu Gln Pro His Ala Leu Gly Pro Val Lys Leu Ser Gln
355 360 365

Lys Glu Leu Leu Gly Pro Pro Glu Ala Lys Arg Ala Arg Gly Pro Glu
370 375 380

Glu Glu Glu Ile Gly Ser Pro Glu Pro Met Ala Ala Pro Ala Ser Ala
385 390 395 400

Ser Gln Lys Leu Ser Pro Leu Gln Lys Leu Ser Ser Met Asp Pro Ala
405 410 415

<210> 1228
<211> 460
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (75)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (147)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (435)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1228
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Lys Gly Ala Gly Arg Cys Arg Leu Ser Lys Ile Gly Ala Thr Arg Arg
 1               5                  10                  15

Pro Pro Pro Ala Arg Val Arg Val Ala Val Arg Leu Arg Pro Phe Val
            20                  25                  30

Asp Gly Thr Ala Gly Ala Ser Asp Pro Pro Cys Val Arg Gly Met Asp
        35                  40                  45

Ser Cys Ser Leu Glu Ile Ala Asn Trp Arg Asn His Gln Glu Thr Leu
    50                  55                  60

Lys Tyr Gln Phe Asp Ala Phe Tyr Gly Glu Xaa Ser Thr Gln Gln Asp
65                  70                  75                  80

Ile Tyr Ala Gly Ser Val Gln Pro Ile Leu Arg His Leu Leu Glu Gly
                85                  90                  95

Gln Asn Ala Ser Val Leu Ala Tyr Gly Pro Thr Gly Ala Gly Lys Thr
            100                 105                 110

His Thr Met Leu Gly Ser Pro Glu Gln Pro Gly Val Ile Pro Arg Ala
        115                 120                 125

Leu Met Asp Leu Leu Gln Leu Thr Arg Glu Glu Gly Ala Glu Gly Arg
    130                 135                 140
```

130 135 140

Thr Ser Ser Met His Gly Ala Asn Glu Thr Pro Ser Gly Arg Pro Arg
145 150 155 160

Glu Ala Lys Leu Val Glu Phe Asp Phe Leu Gly Ala Leu Asp Ile Pro
165 170 175

Val Pro Gly Pro Pro Pro Gly Val Pro Ala Pro Gly Gly Pro Pro Leu
180 185 190

Ser Thr Gly Pro Ile Val Asp Leu Leu Gln Tyr Ser Gln Lys Asp Leu
195 200 205

Asp Ala Val Val Lys Ala Thr Gln Glu Glu Asn Arg Glu Leu Arg Ser
210 215 220

Arg Cys Glu Glu Leu His Gly Lys Asn Leu Glu Leu Gly Lys Ile Met
225 230 235 240

Asp Arg Phe Glu Glu Val Val Tyr Gln Ala Met Glu Glu Val Gln Lys
245 250 255

Gln Lys Glu Leu Ser Lys Ala Glu Ile Gln Lys Val Leu Lys Glu Lys
260 265 270

Asp Gln Leu Thr Thr Asp Leu Asn Ser Met Glu Lys Ser Phe Ser Asp
275 280 285

Leu Phe Lys Arg Phe Glu Lys Gln Lys Glu Val Ile Glu Gly Tyr Arg
290 295 300

Lys Asn Glu Glu Ser Leu Lys Lys Cys Val Glu Asp Tyr Leu Ala Arg
305 310 315 320

Ile Thr Gln Glu Gly Gln Arg Tyr Gln Ala Leu Lys Ala His Ala Glu
325 330 335

Glu Lys Leu Gln Leu Ala Asn Glu Glu Ile Ala Gln Val Arg Ser Lys
340 345 350

Ala Gln Ala Glu Ala Leu Ala Leu Gln Ala Ser Leu Arg Lys Glu Gln
355 360 365

Met Arg Ile Gln Ser Leu Glu Lys Thr Val Glu Gln Lys Thr Lys Glu
370 375 380

Asn Glu Glu Leu Thr Arg Ile Cys Asp Asp Leu Ile Ser Lys Met Glu
385 390 395 400

Lys Ile

<210> 1226
<211> 33
<212> PRT
<213> Homo sapiens

<400> 1226
Lys Gly Asn Lys Ser Trp Ser Ser Thr Ala Val Ala Ala Ala Leu Glu
1 5 10 15

Leu Val Asp Pro Pro Gly Cys Arg Asn Val Thr Ile Ser Thr Cys Cys
20 25 30

Pro

<210> 1227
<211> 402
<212> PRT
<213> Homo sapiens

<400> 1227
Asp Gln Ala Gly Pro Ala Ser Ala Glu Gln Leu His Ala Gly Pro Ala
1 5 10 15

Thr Glu Glu Pro Gly Pro Cys Leu Ser Gln Gln Leu His Ser Ala Ser
20 25 30

Ala Glu Asp Thr Pro Val Val Gln Leu Ala Ala Glu Thr Pro Thr Ala
35 40 45

Glu Ser Lys Glu Arg Ala Leu Asn Ser Ala Ser Thr Ser Leu Pro Thr
50 55 60

Ser Cys Pro Gly Ser Glu Pro Val Pro Thr His Gln Gln Gly Gln Pro
65 70 75 80

Ala Leu Glu Leu Lys Glu Glu Ser Phe Arg Asp Pro Ala Glu Val Leu
85 90 95

Gly Thr Gly Ala Glu Val Asp Tyr Leu Glu Gln Phe Gly Thr Ser Ser
100 105 110

Phe Lys Glu Ser Ala Leu Arg Lys Gln Ser Leu Tyr Leu Lys Phe Asp
115 120 125

Pro Leu Leu Arg Asp Ser Pro Gly Arg Pro Val Pro Val Ala Thr Glu

35 40 45

Tyr Pro Asp Tyr Cys Pro Leu Leu Ile Met Thr Asp Ala Ser Leu Val
50 55 60

Asp Leu Asn Thr Arg Met Glu Lys Lys Met Lys Met Glu Asn Phe Arg
65 70 75 80

Pro Asn Ile Val Val Thr Gly Cys Asp Ala Phe Glu Glu Asp Thr Trp
85 90 95

Asp Glu Leu Leu Ile Gly Ser Val Glu Val Lys Lys Val Met Ala Cys
100 105 110

Pro Arg Cys Ile Leu Thr Thr Val Asp Pro Asp Thr Gly Val Ile Asp
115 120 125

Arg Lys Gln Pro Leu Asp Thr Leu Lys Ser Tyr Arg Leu Xaa Asp Pro
130 135 140

Ser Glu Arg Glu Leu Tyr Lys Leu Ser Pro Leu Phe Gly Ile Tyr Tyr
145 150 155 160

Ser Val Glu Lys Ile Gly Ser Leu Arg Val Gly Asp Pro Val Tyr Arg
165 170 175

Met Val

<210> 1225
<211> 64
<212> PRT
<213> Homo sapiens

<400> 1225
Arg Asn Ile Trp Lys Arg Gln Lys Thr Lys Lys Glu Glu Lys Arg Ser
1 5 10 15

Leu Leu Asp Thr Leu Leu Lys Tyr Asn His Ile Asn Ile Leu Ser Tyr
20 25 30

Phe Leu Pro Ala Phe Leu Gly Gln Ile Leu Val Gly Phe Tyr Ile Val
35 40 45

Glu Ile Val Leu Phe Ile Gln Phe Tyr Thr Leu Phe His Leu Thr Leu
50 55 60

Val Gln Pro Gln Ala Ala Asp Thr Ile Ser Asp Ser Val Ala Val Pro
130 135 140

Ala Ser Leu Leu Gly Met Arg Arg Gly Leu Asn Ser Arg Leu Glu Ala
145 150 155 160

Thr Ala Ala Xaa Ser Val Lys Thr Arg Met Gln Lys Leu Ala Glu Gln
165 170 175

Arg Arg Arg Trp Asp Asn Asp Asp Met Thr Asp Asp Ile Pro Glu Ser
180 185 190

Ser Leu Phe Ser Pro Met Pro Ser Glu Glu Lys Xaa Ala Phe Pro Ser
195 200 205

Gln Thr Ser Xaa Phe Gln Xaa Ala Phe Gly Asn Phe Gln Leu Ala Lys
210 215 220

Lys Gly Ala Arg
225

<210> 1224
<211> 178
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (6)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (26)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (142)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1224
Val Asp Cys Gly Asn Xaa Ala Ala Lys Trp Phe Thr Asn Phe Leu Lys
1 5 10 15

Thr Glu Ala Tyr Arg Leu Val Gln Phe Xaa Thr Asn Met Lys Gly Arg
20 25 30

Thr Ser Arg Lys Leu Leu Pro Thr Leu Asp Gln Asn Phe Gln Val Ala

<210> 1223
<211> 228
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (164)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (204)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (212)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (215)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1223
Ala Glu Thr His Phe Ser Leu Pro Glu Phe Glu Pro Pro Phe Pro Ser
1 5 10 15

Ser Arg Ser Pro Thr Pro Gly Ala Met Asp Pro Phe Thr Glu Lys Leu
20 25 30

Leu Glu Arg Thr Arg Ala Arg Arg Glu Asn Leu Gln Arg Lys Met Ala
35 40 45

Glu Arg Pro Thr Ala Ala Pro Arg Ser Met Thr His Ala Lys Arg Ala
50 55 60

Arg Gln Pro Leu Ser Glu Ala Ser Asn Gln Gln Pro Leu Ser Gly Gly
65 70 75 80

Glu Glu Lys Ser Cys Thr Lys Pro Ser Pro Ser Lys Lys Arg Cys Ser
85 90 95

Asp Asn Thr Glu Val Glu Val Ser Asn Leu Glu Asn Lys Gln Pro Val
100 105 110

Glu Ser Thr Ser Ala Lys Ser Cys Ser Pro Ser Pro Val Ser Pro Gln
115 120 125

```
Ala Glu Pro Gly Leu Ser Asn Pro Trp Gly Ala Gly Ser Xaa Ala Leu
1               5                   10                  15

Gly His Thr Trp Leu Pro Ala Pro Met Val Pro Val Pro Trp Asn Gly
            20                  25                  30

Asp Gly Gln Phe Trp Gly Gln Met Trp Cys Ser Gly Ile Gln Ser His
        35                  40                  45

Phe Leu Pro Gly His Glu Leu Ser Gln Arg Pro Leu Gln Pro His Ser
    50                  55                  60

Ala Pro Thr Tyr Leu Gly Thr Pro Ala Gly Ala Arg Glu Ala Pro Gly
65                  70                  75                  80

Gly Leu Gly Pro Lys
                85
```

<210> 1222
<211> 120
<212> PRT
<213> Homo sapiens

<400> 1222

```
Gly Leu Pro Glu His Val Val Pro Arg Leu Leu Gln Gly Val Glu Val
1               5                   10                  15

Ser Trp Gly Trp Pro Arg Pro Arg Leu Leu Ser Gln Gly Glu Ala Ala
            20                  25                  30

Thr Asp Ser His Pro Thr Ala Leu Leu Lys Arg Met Phe Ala Val Val
        35                  40                  45

Gly Gly Val Pro Val Pro Thr Leu Pro Gly Thr Arg Pro Trp Gly Thr
    50                  55                  60

Leu Ala Gln Gly Cys Leu Gly Pro Ala Ser Cys Ala Ala Lys Val Gly
65                  70                  75                  80

Gly Pro His Pro Lys Thr Asn Pro Gly Pro Arg Pro Leu Glu Ala Arg
                85                  90                  95

Ala Ser Leu His Gly Leu Arg Gly Val Gly Ile Ser Pro Gln Ser Asp
            100                 105                 110

Leu Ala Ser Glu Leu Phe Ser Arg
        115                 120
```

260 265 270

Leu Lys Lys Thr Ile Glu Glu Ala Lys Ala Ile Ile Ser Lys Lys Gln
275 280 285

Val Glu Ala Gly Val Cys Val Thr Met Glu Met Val Lys Asp Ala Leu
290 295 300

Asp Gln Leu Arg Gly Ala Val Met Ile Val Tyr Pro Met Gly Leu Pro
305 310 315 320

Pro Tyr Asp Pro Ile Arg Met Glu Phe Glu Asn Lys Glu Asp Leu Ser
325 330 335

Gly Thr Gln Ala Gly Leu Asn Val Ile Lys Glu Ala Glu Ala Gln Leu
340 345 350

Trp Trp Ala Ala Lys Glu Leu Arg Arg Thr Lys Lys Leu Ser Asp Tyr
355 360 365

Val Gly Lys Asn Glu Lys Thr Lys Ile Ile Ala Lys Ile Gln Gln Arg
370 375 380

Gly Gln Gly Ala Pro Ala Arg Glu Pro Ile Ile Ser Ser Glu Glu Gln
385 390 395 400

Lys Gln Leu Met Leu Tyr Tyr His Arg Arg Gln Glu Glu Leu Lys Arg
405 410 415

Leu Glu Glu Asn Asp Asp Asp Ala Tyr Leu Asn Ser Pro Trp Ala Asp
420 425 430

Asn Thr Ala Leu Lys Arg His Phe His Gly Val Lys Asp Ile Lys Trp
435 440 445

Arg Pro Arg
450

<210> 1221
<211> 85
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (14)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1221

<400> 1220

Val Glu Ile Ser Gly Pro Arg Pro Val Asp Trp Glu Val Arg Pro Pro
1   5   10   15

Leu Gln Arg Leu Gly Leu Cys Phe Gly Ser Cys Arg Xaa Gln Gln Ser
            20   25   30

Leu Pro Gly Arg Gly Ser Ala Asn Leu Leu Pro Ser Val Arg Ser Glu
        35   40   45

Ser Ala Val Leu Ser Asp Cys Val Gly Gly Phe Pro Gly Arg Ser Ser
    50   55   60

Val Arg Ala Trp Ile Ala Gly Pro Arg Cys Thr Pro Ala Ser Pro Thr
65   70   75   80

Arg Val Leu Ser Leu Ser Trp Arg Leu Phe Asn Ser Ala Ser Leu Leu
                85   90   95

Leu Leu Ala Thr Ser Thr Ser Gly Ser Glu Cys Arg Phe Pro Arg Ser
            100   105   110

Pro Arg Ala Arg Glu Arg Gly Ile Pro Asp Cys Glu Arg Leu Leu Val
        115   120   125

Arg Arg Ser Cys Trp Arg Ser Gly Asp Pro Arg Pro Ala Gly Pro Ala
    130   135   140

Gly His Ala Ala Gly Ala Phe Ser Thr Pro Gln Tyr Leu Gly Gly Thr
145   150   155   160

Ala Met Val Leu Leu His Val Lys Arg Gly Asp Glu Ser Gln Phe Leu
                165   170   175

Leu Gln Ala Pro Gly Ser Thr Glu Leu Glu Glu Leu Thr Val Gln Val
            180   185   190

Ala Arg Val Tyr Asn Gly Arg Leu Lys Val Gln Arg Leu Cys Ser Glu
        195   200   205

Met Glu Glu Leu Ala Glu His Gly Ile Phe Leu Pro Pro Asn Met Gln
    210   215   220

Gly Leu Thr Asp Asp Gln Ile Glu Glu Leu Lys Leu Lys Asp Glu Trp
225   230   235   240

Gly Glu Lys Cys Val Pro Ser Gly Gly Ala Val Phe Lys Lys Asp Asp
                245   250   255

Ile Gly Arg Arg Asn Gly Gln Ala Pro Asn Glu Lys Met Lys Gln Val

```
Glu Leu Gln Ser Arg Lys Ala Ile Asp Ala Ala Thr Gln Thr Glu Pro
385                 390                 395                 400

Gly Glu Glu Met Pro Gly Leu Ser Val Ser Glu Val Gly Thr Gln Thr
                405                 410                 415

Ser Ile Thr Thr Ala Cys Ala Gly Thr Gln Thr Ala Val Ile Thr Arg
            420                 425                 430

Ile Ala Ser Ser Gln Thr Thr Ile Trp Ser Arg Ser Thr Thr Thr Gln
        435                 440                 445

Thr Asp Met Asp Glu Asn Ile Leu Phe Pro Arg Gly Thr Gln Ser Thr
    450                 455                 460

Glu Gly Ser Pro Val Ser Lys Met Ser Val Ser Arg Ser Ser Ser Leu
465                 470                 475                 480

Lys Ser Ser Ser Ser Val Ser Ser Gln Gly Ser Val Ala Ser Ser Thr
                485                 490                 495

Gly Ser Pro Ala Ser Ile Arg Thr Thr Asp Phe His Asn Pro Gly Tyr
            500                 505                 510

Pro Lys Tyr Leu Gly Thr Pro His Leu Glu Leu Tyr Leu Ser Asp Ser
        515                 520                 525

Leu Arg Asn Leu Asn Lys Glu Arg Gln Phe His Phe Ala Gly Ile Arg
    530                 535                 540

Ser Arg Leu Asn His Met Leu Ala Met Leu Ser Arg Arg Thr Leu Phe
545                 550                 555                 560

Thr Glu Asn His Leu Gly Leu His Ser Gly Asn Phe Ser Arg Val Asn
                565                 570                 575

Leu Leu Ala Val Arg Asp Val Ala Leu Tyr Pro Ser Tyr Gln
            580                 585                 590
```

<210> 1220
<211> 451
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (29)
<223> Xaa equals any of the naturally occurring L-amino acids

Pro Gly Ala Xaa Ala Val Gly Ala Trp Leu Ala Arg Leu Leu Xaa Gly
115 120 125

Arg Leu Xaa Arg Arg Xaa Ala Cys Arg Asp Ala Leu Pro Ala Pro Arg
130 135 140

Arg Trp Arg Arg Trp Pro Leu Arg Leu Gln Gly Arg Ser Xaa Pro His
145 150 155 160

Xaa Arg Ser Ala Arg Glu Val Ile Ala Val Val Met Asp Val Phe Thr
165 170 175

Asp Ile Asp Ile Phe Arg Asp Leu Gln Glu Ile Cys Arg Lys Gln Gly
180 185 190

Val Ala Val Tyr Ile Leu Leu Asp Gln Ala Leu Leu Ser Gln Phe Leu
195 200 205

Asp Met Cys Met Xaa Leu Lys Xaa His Pro Glu Gln Glu Lys Leu Met
210 215 220

Thr Val Arg Thr Ile Thr Gly Asn Ile Tyr Tyr Ala Arg Ser Gly Thr
225 230 235 240

Lys Ile Ile Gly Lys Val His Glu Lys Phe Thr Leu Ile Asp Gly Ile
245 250 255

Arg Val Ala Thr Gly Ser Tyr Ser Phe Thr Trp Thr Asp Gly Lys Leu
260 265 270

Asn Ser Ser Asn Leu Val Ile Leu Ser Gly Gln Val Val Glu His Phe
275 280 285

Asp Leu Glu Phe Arg Ile Leu Tyr Ala Gln Ser Lys Pro Ile Ser Pro
290 295 300

Lys Leu Leu Ser His Phe Gln Ser Ser Asn Lys Phe Asp His Leu Thr
305 310 315 320

Asn Arg Lys Pro Gln Ser Lys Glu Leu Thr Leu Gly Asn Leu Leu Arg
325 330 335

Met Arg Leu Ala Arg Leu Ser Ser Thr Pro Arg Lys Ala Asp Leu Asp
340 345 350

Pro Glu Met Pro Ala Glu Gly Lys Ala Glu Arg Lys Pro His Asp Cys
355 360 365

Glu Ser Ser Thr Val Ser Glu Glu Asp Tyr Phe Ser Ser His Arg Asp
370 375 380

<220>
<221> SITE
<222> (131)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (134)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (158)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (161)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (213)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (216)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1219
Ala Gln Val Arg Ala Pro Pro Trp Leu Cys Cys Pro Arg Ala Trp Thr
1 5 10 15

Xaa Cys Pro Pro Pro Ala Cys Arg Arg Ala Gly Arg Pro Thr Arg Pro
20 25 30

Ser Cys Ser Ala Val Thr Ala Pro Gly Ser Gly Gly Leu Val Ala Gly
35 40 45

Gly Pro Glu Ala Phe Ala Ala Phe Leu Arg Arg Glu Arg Leu Ala Arg
50 55 60

Phe Leu Asn Pro Asp Glu Val His Ala Ile Leu Arg Ala Ala Glu Arg
65 70 75 80

Pro Gly Glu Glu Gly Ala Ala Ala Ala Ala Ala Ala Arg Thr Arg Ser
85 90 95

Ala Pro Arg Thr Thr Ala Leu Arg Ala Leu Leu Pro Arg Ala Val Gly
100 105 110

100 105 110

Gly Pro Ala Tyr Ala Phe Thr Ala Leu Asp Ala Leu Ala Asp Gly Gly
115 120 125

Val Lys Met Gly Leu Pro Arg Arg Leu Ala Val Arg Leu Gly Ala Gln
130 135 140

Ala Leu Leu Gly Ala Ala Lys Met Leu Leu His Ser Glu Gln His Pro
145 150 155 160

Gly Gln Leu Lys Asp Asn Val Ser Ser Pro Gly Gly Ala Thr Ile His
165 170 175

Ala Leu His Val Leu Glu Ser Gly Gly Phe Arg Ser Leu Leu Ile Asn
180 185 190

Ala Val Glu Ala Ser Cys Ile Arg Thr Arg Glu Leu Gln Ser Met Ala
195 200 205

Asp Gln Glu Gln Val Ser Pro Ala Ala Ile Lys Lys Thr Ile Leu Asp
210 215 220

Lys Val Lys Leu Asp Ser Pro Ala Gly Thr Ala Leu Ser Pro Ser Gly
225 230 235 240

His Thr Lys Leu Leu Pro Arg Ser Leu Ala Pro Ala Gly Lys Asp
245 250 255

<210> 1219
<211> 590
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (17)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (116)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (127)
<223> Xaa equals any of the naturally occurring L-amino acids

Xaa Xaa Gly Cys Phe Pro Val Tyr Leu Val Tyr Ser Asp Lys Arg Met
145 150 155 160

Val Gln Thr Ala Ala Gly Asp Tyr Ser Gly Asn Ile Glu Trp Pro Ala
165 170 175

Ala His Ser Val Gln Pro Cys Gly Xaa Pro Ala Ala Arg Pro Leu Xaa
180 185 190

Pro Ser Ser Pro Pro Pro Xaa Pro Thr Gly Cys Cys Ser Xaa Pro Ser
195 200 205

Thr Gln Ser Xaa Gln Ser Arg Leu Gln Xaa His Ala Gln Thr Val Glu
210 215 220

Pro Lys
225

<210> 1218
<211> 255
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (2)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1218
Cys Xaa Leu Pro Gly Cys Glu Ala His Ile Ile Pro Phe Ile Leu Asp
1 5 10 15

Glu Ile Gly Ala Asp Ile Glu Asp Arg His Ile Val Val Ser Cys Ala
20 25 30

Ala Gly Val Thr Ile Ser Ser Ile Glu Lys Lys Leu Ser Ala Phe Arg
35 40 45

Pro Ala Pro Arg Val Ile Arg Cys Met Thr Asn Thr Pro Val Val Val
50 55 60

Arg Glu Gly Ala Thr Val Tyr Ala Thr Gly Thr His Ala Gln Val Glu
65 70 75 80

Asp Gly Arg Leu Met Glu Gln Leu Leu Ser Ser Val Gly Phe Cys Thr
85 90 95

Glu Val Glu Glu Asp Leu Ile Asp Ala Val Thr Gly Leu Ser Gly Ser

<221> SITE
<222> (192)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (199)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (206)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (212)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (218)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1217
Leu Lys Val Leu Trp Cys Phe Leu Ile His Val Gln Gly Ser Ile Arg
1   5   10   15

Gln Phe Ala Ala Cys Leu Val Leu Thr Asp Phe Gly Ile Ala Val Phe
            20   25   30

Glu Ile Pro His Gln Glu Ser Arg Gly Ser Ser Gln His Ile Leu Ser
        35   40   45

Ser Leu Arg Phe Val Phe Cys Phe Pro His Gly Asp Leu Thr Glu Phe
    50   55   60

Gly Phe Leu Met Pro Glu Leu Cys Leu Val Leu Lys Val Arg His Ser
65   70   75   80

Glu Asn Thr Leu Phe Ile Ile Ser Asp Ala Ala Asn Leu His Glu Phe
                85   90   95

His Xaa Asp Leu Arg Ser Cys Phe Ala Pro Gln His Met Ala Met Leu
            100   105   110

Cys Ser Pro Ile Leu Tyr Gly Ser His Thr Ser Leu Gln Glu Phe Leu
        115   120   125

Arg Gln Leu Leu Thr Phe Tyr Lys Val Ala Gly Gly Cys Gln Glu Arg
    130   135   140

435 440 445

Leu Ile Lys His Lys Pro Ser Val Lys Gly Arg Ala Gln Leu Gly Val
450 455 460

Gln Ala Phe Ala Asp Ala Leu Leu Ile Ile Pro Lys Val Leu Ala Gln
465 470 475 480

Asn Ser Gly Phe Asp Leu Gln Glu Thr Leu Val Lys Ile Gln Ala Glu
485 490 495

His Ser Glu Ser Gly Gln Leu Val Gly Val Asp Leu Asn Thr Gly Glu
500 505 510

Pro Met Val Ala Ala Glu Val Gly Val Trp Asp Asn Tyr Cys Val Lys
515 520 525

Lys Gln Leu Leu His Ser Cys Thr Val Ile Ala Thr Asn Ile Leu Leu
530 535 540

Val Asp Glu Ile Met Arg Ala Gly Met Ser Ser Leu Lys Gly
545 550 555

<210> 1217
<211> 226
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (98)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (145)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (146)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (185)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

165 170 175

Asp Val Ala Arg Thr Ser Leu Arg Thr Lys Val His Ala Glu Leu Ala
180 185 190

Asp Val Leu Thr Glu Ala Val Val Asp Ser Ile Leu Ala Ile Lys Lys
195 200 205

Gln Asp Glu Pro Ile Asp Leu Phe Met Ile Glu Ile Met Glu Met Lys
210 215 220

His Lys Ser Glu Thr Asp Thr Ser Leu Ile Arg Gly Leu Val Leu Asp
225 230 235 240

His Gly Ala Arg His Pro Asp Met Lys Lys Arg Val Glu Asp Ala Tyr
245 250 255

Ile Leu Thr Cys Asn Val Ser Leu Glu Tyr Glu Lys Thr Glu Val Asn
260 265 270

Ser Gly Phe Phe Tyr Lys Ser Ala Glu Glu Arg Glu Lys Leu Val Lys
275 280 285

Ala Glu Arg Lys Phe Ile Glu Asp Arg Val Lys Lys Ile Ile Glu Leu
290 295 300

Lys Arg Lys Val Cys Gly Asp Ser Asp Lys Gly Phe Val Val Ile Asn
305 310 315 320

Gln Lys Gly Ile Asp Pro Phe Ser Leu Asp Ala Leu Ser Lys Glu Gly
325 330 335

Ile Val Ala Leu Arg Arg Ala Lys Arg Arg Asn Met Glu Arg Leu Thr
340 345 350

Leu Ala Cys Gly Gly Val Ala Leu Asn Ser Phe Asp Asp Leu Ser Pro
355 360 365

Asp Cys Leu Gly His Ala Gly Leu Val Tyr Glu Tyr Thr Leu Gly Glu
370 375 380

Glu Lys Phe Thr Phe Ile Glu Lys Cys Asn Asn Pro Arg Ser Val Thr
385 390 395 400

Leu Leu Ile Lys Gly Pro Asn Lys His Thr Leu Thr Gln Ile Lys Asp
405 410 415

Ala Val Arg Asp Gly Leu Arg Ala Val Lys Asn Ala Ile Asp Asp Gly
420 425 430

Cys Val Val Pro Gly Ala Gly Ala Val Glu Val Ala Met Ala Glu Ala

Arg Val Gln Lys Ser Lys Ala Val Leu Gln Ser Lys Ser Thr Leu Ala
305 310 315 320

Ser Lys Lys Arg Thr Asp Arg Phe Asn Ile Lys Ser Arg Glu Arg Ser
325 330 335

Gly Gly Pro Val Thr Arg Ser Leu Gln Leu Ala Ala Ala Ala Asp Leu
340 345 350

Ser Glu Asn Lys Arg Glu Asp Gly Ser Ala Ser Arg Ser
355 360 365

<210> 1216
<211> 558
<212> PRT
<213> Homo sapiens

<400> 1216
Ala His Ala Ser Ala His Ala Ala Thr Pro Arg Arg Leu Trp Ala Leu
1 5 10 15

Ser Ile Val Ser Phe Ser Ser Ala Gly Ala Ala Met Ala Ala Val Lys
20 25 30

Thr Leu Asn Pro Lys Ala Glu Val Ala Arg Ala Gln Ala Ala Leu Ala
35 40 45

Val Asn Ile Ser Ala Ala Arg Gly Leu Gln Asp Val Leu Arg Thr Asn
50 55 60

Leu Gly Pro Lys Gly Thr Met Lys Met Leu Val Ser Gly Ala Gly Asp
65 70 75 80

Ile Lys Leu Thr Lys Asp Gly Asn Val Leu Leu His Glu Met Gln Ile
85 90 95

Gln His Pro Thr Ala Ser Leu Ile Ala Lys Val Ala Thr Ala Gln Asp
100 105 110

Asp Ile Thr Gly Asp Gly Thr Thr Ser Asn Val Leu Ile Ile Gly Glu
115 120 125

Leu Leu Lys Gln Ala Asp Leu Tyr Ile Ser Glu Gly Leu His Pro Arg
130 135 140

Ile Ile Thr Glu Gly Phe Glu Ala Ala Lys Glu Lys Ala Leu Gln Phe
145 150 155 160

Leu Glu Glu Val Lys Val Ser Arg Glu Met Asp Arg Glu Thr Leu Ile

Val Asp Asn Met Pro Glu Leu His Lys His Ile Leu Ala Cys Ala Ser
35 40 45

Ala Ser Asp Lys Lys Arg Tyr Thr Pro Lys Lys Asn Pro Val Pro Leu
50 55 60

Lys Gln Thr Val Gln Pro Lys Asn Gly Val Val Val Leu Asp Asn Ser
65 70 75 80

Gly Lys Asn Ala Phe Arg Arg Met Gly Gln Pro Lys Arg Leu Asn Phe
85 90 95

Ser Val Glu Leu Ser Lys Met Ser Ser Asn Lys Leu Lys Leu Asn Ala
100 105 110

Leu Lys Lys Lys Asn Gln Leu Val Gln Lys Ala Ile Leu Gln Lys Asn
115 120 125

Lys Ser Ala Lys Gln Lys Ala Asp Leu Lys Asn Ala Cys Glu Ser Ser
130 135 140

Ser His Ile Cys Pro Tyr Cys Asn Arg Glu Phe Thr Tyr Ile Gly Ser
145 150 155 160

Leu Asn Lys His Ala Ala Phe Ser Cys Pro Lys Lys Pro Leu Ser Pro
165 170 175

Pro Lys Lys Lys Val Ser His Ser Ser Lys Lys Gly Gly His Ser Ser
180 185 190

Pro Ala Ser Ser Asp Lys Asn Ser Asn Ser Asn His Arg Arg Arg Thr
195 200 205

Ala Asp Ala Glu Ile Lys Met Gln Ser Met Gln Thr Pro Leu Gly Lys
210 215 220

Thr Arg Ala Arg Ser Ser Gly Pro Thr Gln Val Pro Leu Pro Ser Ser
225 230 235 240

Ser Phe Arg Ser Lys Gln Asn Val Lys Phe Ala Ala Ser Val Lys Ser
245 250 255

Lys Lys Pro Ser Ser Ser Ser Leu Arg Asn Ser Ser Pro Ile Arg Met
260 265 270

Ala Lys Ile Thr His Val Glu Gly Lys Lys Pro Lys Ala Val Ala Lys
275 280 285

Asn His Ser Ala Gln Leu Ser Ser Lys Thr Ser Arg Ser Leu His Val
290 295 300

Ser His Val Glu Cys Ala Arg Phe Ser Pro Asp Gly Pro Val Phe Gly
245 250 255

His Trp Val Cys
260

<210> 1214
<211> 95
<212> PRT
<213> Homo sapiens

<400> 1214
Lys Gln Asn Ile Pro Tyr Val Ser Phe Ser Ile Gly Gln Lys His Phe
1 5 10 15

Asp Thr Met Phe Val Lys His Leu Trp Arg Gly Ala Leu Leu Asn Ala
20 25 30

Ala Ser Ala Val Asn Pro Gly Gly Lys Gly Ser Ala Ser Ser Gln Glu
35 40 45

Pro Ser Pro Ser Ile Asn Arg Glu Leu Lys Gln Ala Phe Phe Phe Ser
50 55 60

Tyr Arg Lys Ala Ala Ile Val Gln Gly His Ile Met Gly Leu Phe Ala
65 70 75 80

Leu Ile Gly Phe Gln Met Cys Met Ala Lys Arg Glu Met Trp Ala
85 90 95

<210> 1215
<211> 365
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (1)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1215
Xaa His Gly Ile Gly Val Thr Ala Thr Asn Phe Thr Thr His Asn Ile
1 5 10 15

Pro Gln Thr Phe Thr Thr Ala Ile Arg Cys Thr Lys Cys Gly Lys Gly
20 25 30

<220>
<221> SITE
<222> (205)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1213
Cys Pro Pro Glu Cys Arg Trp Cys Val Ala Arg Leu Ala Leu Arg Glu
1 5 10 15

Ser Trp Gly Leu Leu Pro Glu Arg Tyr Gly Tyr Val Asp Arg Asn Arg
20 25 30

Ile Phe Gly Cys Asp Pro Pro Tyr Tyr Ala Val Leu Glu Gly Glu Gln
35 40 45

Phe Thr Ser Gly Val Ser Thr Leu Gln Glu Glu Thr Thr Val Ser Leu
50 55 60

Asn Thr Val Asp Ser Ile Glu Ser Phe Val Ala Asp Ile Asn Ser Gly
65 70 75 80

His Trp Asp Thr Val Leu Gln Ala Ile Gln Ser Leu Lys Leu Pro Asp
85 90 95

Lys Thr Leu Ile Asp Leu Tyr Glu Gln Val Val Leu Glu Leu Ile Glu
100 105 110

Leu Arg Glu Leu Gly Ala Ala Arg Ser Leu Leu Arg Gln Thr Asp Pro
115 120 125

Met Ile Met Leu Lys Gln Thr Gln Pro Glu Arg Tyr Ile His Leu Glu
130 135 140

Asn Leu Leu Ala Arg Ser Tyr Phe Asp Pro Arg Glu Ala Tyr Pro Asp
145 150 155 160

Gly Ser Ser Lys Glu Lys Arg Arg Ala Ala Ile Ala Gln Ala Leu Ala
165 170 175

Gly Glu Val Ser Val Val Pro Pro Ser Arg Leu Met Ala Leu Leu Gly
180 185 190

Gln Ala Leu Lys Trp Gln Gln His Gln Gly Leu Leu Xaa Pro Gly Met
195 200 205

Thr Ile Asp Leu Phe Arg Gly Lys Ala Ala Val Lys Asp Val Glu Glu
210 215 220

Glu Lys Phe Pro Thr Gln Leu Ser Arg His Ile Lys Phe Gly Gln Lys
225 230 235 240

Arg Thr Ala His
675

<210> 1211
<211> 56
<212> PRT
<213> Homo sapiens

<400> 1211
His Val Cys Leu Thr Leu Met Glu Gly Ile Asn Pro Gln Asn Phe Leu
1 5 10 15

Pro Arg Glu Leu Gly Asn Cys Pro Arg Asn Lys Pro Cys Thr Val Glu
20 25 30

Trp Thr Trp Ile Ser Asn Asn Leu Leu Leu Cys Arg Ile Cys Ser Leu
35 40 45

Val Ile Val Trp Cys Val Ile Leu
50 55

<210> 1212
<211> 61
<212> PRT
<213> Homo sapiens

<400> 1212
Ser Tyr Pro Ala Ala Lys Ser Ser Val Ile Phe Gly Ala Leu Arg Ile
1 5 10 15

Thr Leu Val Ser Ala His Phe Pro Phe Cys Leu Pro Tyr Lys Ala Gln
20 25 30

Asn Arg Val Gly Lys Lys Tyr Glu Thr Ser Thr Val Ser Thr Phe Leu
35 40 45

Glu Val Trp Tyr Leu Val Ser Arg Leu Arg Pro Gln Asp
50 55 60

<210> 1213
<211> 260
<212> PRT
<213> Homo sapiens

Asn Arg Tyr Ile Ala Asn Thr Val Glu Leu Arg Val Lys Ile Ser Thr
405 410 415

Glu Val Gly Ile Thr Asn Val Asp Leu Ser Thr Val Asp Lys Asp Gln
420 425 430

Ser Ile Ala Pro Lys Thr Thr Arg Val Thr Tyr Pro Ala Lys Ala Lys
435 440 445

Gly Thr Phe Ile Ala Asp Ser His Gln Asn Phe Ala Leu Phe Phe Gln
450 455 460

Leu Val Asp Val Asn Thr Gly Ala Glu Leu Thr Pro His Gln Thr Phe
465 470 475 480

Val Arg Leu His Asn Gln Lys Thr Gly Gln Glu Val Val Phe Val Ala
485 490 495

Glu Pro Asp Asn Lys Asn Val Tyr Lys Phe Glu Leu Asp Thr Ser Glu
500 505 510

Arg Lys Ile Glu Phe Asp Ser Ala Ser Gly Thr Tyr Thr Leu Tyr Leu
515 520 525

Ile Ile Gly Asp Ala Thr Leu Lys Asn Pro Ile Leu Trp Asn Val Ala
530 535 540

Asp Val Val Ile Lys Phe Pro Glu Glu Glu Ala Pro Ser Thr Val Leu
545 550 555 560

Ser Gln Asn Leu Phe Thr Pro Lys Gln Glu Ile Gln His Leu Phe Arg
565 570 575

Glu Pro Glu Lys Arg Pro Pro Thr Val Val Ser Asn Thr Phe Thr Ala
580 585 590

Leu Ile Leu Ser Pro Leu Leu Leu Leu Phe Ala Leu Trp Ile Arg Ile
595 600 605

Gly Ala Asn Val Ser Asn Phe Thr Phe Ala Pro Ser Thr Ile Ile Phe
610 615 620

His Leu Gly His Ala Ala Met Leu Gly Leu Met Tyr Val Tyr Trp Thr
625 630 635 640

Gln Leu Asn Met Phe Gln Thr Leu Lys Tyr Leu Ala Ile Leu Gly Ser
645 650 655

Val Thr Phe Leu Ala Gly Asn Arg Met Leu Ala Gln Gln Ala Val Lys
660 665 670

Val Asp Ser Leu Phe Tyr Ala Ala Gln Ala Ser Gln Ala Leu Ser Gly
130 135 140

Cys Glu Ile Ser Ile Ser Asn Glu Thr Lys Asp Leu Leu Leu Ala Ala
145 150 155 160

Val Ser Glu Asp Ser Ser Val Thr Gln Ile Tyr His Ala Val Ala Ala
165 170 175

Leu Ser Gly Phe Gly Leu Pro Leu Ala Ser Gln Glu Ala Leu Ser Ala
180 185 190

Leu Thr Ala Arg Leu Ser Lys Glu Glu Thr Val Leu Ala Thr Val Gln
195 200 205

Ala Leu Gln Thr Ala Ser His Leu Ser Gln Gln Ala Asp Leu Arg Ser
210 215 220

Ile Val Glu Glu Ile Glu Asp Leu Val Ala Arg Leu Asp Glu Leu Gly
225 230 235 240

Gly Val Tyr Leu Gln Phe Glu Glu Gly Leu Glu Thr Thr Ala Leu Phe
245 250 255

Val Ala Ala Thr Tyr Lys Leu Met Asp His Val Gly Thr Glu Pro Ser
260 265 270

Ile Lys Glu Asp Gln Val Ile Gln Leu Met Asn Ala Ile Phe Ser Lys
275 280 285

Lys Asn Phe Glu Ser Leu Ser Glu Ala Phe Ser Val Ala Ser Ala Ala
290 295 300

Ala Val Leu Ser His Asn Arg Tyr His Val Pro Val Val Val Val Pro
305 310 315 320

Glu Gly Ser Ala Ser Asp Thr His Glu Gln Ala Ile Leu Arg Leu Gln
325 330 335

Val Thr Asn Val Leu Ser Gln Pro Leu Thr Gln Ala Thr Val Lys Leu
340 345 350

Glu His Ala Lys Ser Val Ala Ser Arg Ala Thr Val Leu Gln Lys Thr
355 360 365

Ser Phe Thr Pro Val Xaa Asp Val Phe Glu Leu Asn Phe Met Asn Val
370 375 380

Lys Phe Ser Ser Gly Tyr Tyr Asp Phe Leu Val Glu Val Glu Gly Asp
385 390 395 400

Gln Pro Gln His Xaa Ala Val Ile Leu Asn Gln Glu Ile Arg Glu Leu
260 265 270

Glu Arg Gln Gln Glu Gln Leu Val Lys Ile Cys Lys Asn Cys Thr Gly
275 280 285

Cys Phe Asp Arg His Ile Pro Cys Val Ser Leu Asn Cys Pro Val Leu
290 295 300

Phe Lys Leu Ser Arg Val Asn Arg Glu Leu Ser Lys Ala Pro Tyr Leu
305 310 315 320

Arg Gln Leu Leu Asp Gln Phe
325

<210> 1210
<211> 676
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (374)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1210
Pro Val Leu Arg Thr His Pro Gly Pro Gln Ser Leu Pro Arg Val Pro
1 5 10 15

Gly Val Pro Cys Gly Gly Leu Leu Glu Pro Leu Ser Arg Ala Glu Val
20 25 30

Ser Pro Arg Leu Gly Leu Arg Arg Asp Leu Leu Gly Gly Met Ala Pro
35 40 45

Pro Gly Ser Ser Thr Val Phe Leu Leu Ala Leu Thr Ile Ile Ala Ser
50 55 60

Thr Trp Ala Leu Thr Pro Thr His Tyr Leu Thr Lys His Asp Val Glu
65 70 75 80

Arg Leu Lys Ala Ser Leu Asp Arg Pro Phe Thr Asn Leu Glu Ser Ala
85 90 95

Phe Tyr Ser Ile Val Gly Leu Ser Ser Leu Gly Ala Gln Val Pro Asp
100 105 110

Ala Lys Lys Ala Cys Thr Tyr Ile Arg Ser Asn Leu Asp Pro Ser Asn
115 120 125

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1209

Asn Ile Leu Gly Gly Gly Lys Trp Phe Leu Arg Gly Ile Leu Leu Ile
1   5   10   15

Leu Pro Gln Val Tyr Leu Pro Cys Val Leu Gln Thr Lys Xaa Arg Tyr
            20   25   30

Val Gly Tyr Met Tyr Glu Thr Leu Asp Gln Lys Asp Pro Val Phe Asp
        35   40   45

Ala Lys Gly Ile Glu Thr Val Arg Arg Asp Ser Cys Pro Ala Val Ser
    50   55   60

Lys Ile Leu Glu Arg Ser Leu Lys Leu Leu Phe Glu Thr Arg Asp Ile
65   70   75   80

Ser Leu Ile Lys Gln Tyr Val Gln Arg Gln Cys Met Lys Leu Leu Glu
                85   90   95

Gly Lys Ala Ser Ile Gln Asp Phe Ile Phe Ala Lys Glu Tyr Arg Gly
            100   105   110

Ser Phe Ser Tyr Lys Pro Gly Ala Cys Val Pro Ala Leu Glu Leu Thr
        115   120   125

Arg Lys Met Leu Thr Tyr Asp Arg Arg Ser Glu Pro Gln Val Gly Glu
    130   135   140

Arg Val Pro Tyr Val Ile Ile Tyr Gly Thr Pro Gly Val Pro Leu Ile
145   150   155   160

Gln Leu Val Arg Arg Pro Val Glu Val Leu Gln Asp Pro Thr Leu Arg
                165   170   175

Leu Asn Ala Thr Tyr Tyr Ile Thr Lys Gln Ile Leu Pro Pro Leu Ala
            180   185   190

Arg Ile Phe Ser Leu Ile Gly Ile Asp Val Phe Ser Trp Tyr His Glu
        195   200   205

Leu Pro Arg Ile His Lys Ala Thr Ser Ser Ser Arg Ser Glu Pro Glu
    210   215   220

Gly Arg Lys Gly Thr Ile Ser Gln Tyr Phe Thr Thr Leu His Cys Pro
225   230   235   240

Val Cys Asp Asp Leu Thr Gln His Gly Ile Cys Ser Lys Cys Arg Ser
                245   250   255

Arg Glu Phe Pro Val Ile Ser Val Val Gly Tyr Thr Asn Cys Gly Lys
115 120 125

Thr Thr Leu Ile Lys Ala Leu Thr Gly Asp Ala Ala Ile Gln Pro Arg
130 135 140

Asp Gln Leu Phe Ala Thr Leu Asp Val Thr Ala His Ala Gly Thr Leu
145 150 155 160

Pro Ser Arg Met Thr Val Leu Tyr Val Asp Thr Ile Gly Phe Leu Ser
165 170 175

Gln Leu Pro His Gly Leu Ile Glu Ser Phe Ser Ala Thr Leu Glu Asp
180 185 190

Val Ala His Ser Asp Leu Ile Leu His Val Arg Asp Val Ser His Pro
195 200 205

Glu Ala Glu Leu Gln Lys Cys Ser Val Leu Ser Thr Leu Arg Gly Leu
210 215 220

Gln Leu Pro Ala Pro Leu Leu Asp Ser Met Val Glu Val His Asn Lys
225 230 235 240

Val Asp Leu Val Pro Gly Tyr Ser Pro Thr Glu Pro Asn Val Val Pro
245 250 255

Val Ser Ala Leu Arg Gly His Gly Leu Gln Glu Leu Lys Leu Ser Ser
260 265 270

Met Arg Arg Phe Xaa Arg Arg Arg Gly Asp Arg Ser Ser Leu Ser Val
275 280 285

<210> 1209
<211> 327
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (30)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (261)

100 105 110

Ile Lys Val Leu Glu Asp Gln Phe Asp Glu Ile Ile Val Asp Ile Ala
115 120 125

Thr Lys Arg Lys Gln Tyr Pro Arg Lys Ile Leu Glu Cys Val Ile Lys
130 135 140

Thr Ile Lys Ala Lys Gln Glu Ile Leu Lys Gln Tyr His Pro Val Val
145 150 155 160

His Pro Leu Asp Leu Lys Tyr Asp Pro Asp Pro Val Leu Ala Cys Ile
165 170 175

Asn

<210> 1208
<211> 288
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (277)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1208
Pro His Arg Val Asp Thr Arg Arg Arg Asp Pro Val Pro Arg Ser Arg
1 5 10 15

Ala Leu Ser His Gly Thr Gly Arg Val Gly Ala Ala Ala Gly Glu Ser
20 25 30

Ser Arg Ala Pro Arg Cys Trp Ser Gly Ser Arg Pro Arg Ala Pro Ala
35 40 45

Asp Pro Pro Arg His Arg Pro Leu Leu Cys Leu Ser Arg Arg Gly Ser
50 55 60

Pro Pro His His Leu Gly Cys Leu Leu Gly Glu Ser Phe Met Gln Leu
65 70 75 80

Gln Gln Arg Leu Leu Arg Glu Lys Glu Ala Lys Ile Arg Lys Ala Leu
85 90 95

Asp Arg Leu Arg Lys Lys Arg His Leu Leu Arg Arg Gln Arg Thr Arg
100 105 110

<220>
<221> SITE
<222> (52)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (56)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1206
Arg Glu His Ser Ala Phe Asp Leu Trp Glu Ile Ser Ser Trp Xaa Pro
1 5 10 15

Trp Cys Cys Thr Asp His Gln Glu Glu Leu Lys Ser Ser Gly Asn Leu
20 25 30

Xaa Lys Ile Lys Ser Pro Pro Ala Arg Xaa Leu Ser Lys Ile Thr Gly
35 40 45

Arg Leu Leu Xaa Gln His Val Xaa Glu Cys Ala Ser Gly
50 55 60

<210> 1207
<211> 177
<212> PRT
<213> Homo sapiens

<400> 1207
Asn Ser Ala Gln Gly Met Ala Gly Ser Pro Glu Leu Val Val Leu Asp
1 5 10 15

Pro Pro Trp Asp Lys Glu Leu Ala Ala Gly Thr Glu Ser Gln Ala Leu
20 25 30

Val Ser Ala Thr Pro Arg Glu Asp Phe Arg Val Arg Cys Thr Ala Lys
35 40 45

Arg Ala Val Thr Glu Met Leu Gln Leu Cys Gly Arg Phe Val Gln Lys
50 55 60

Leu Gly Asp Ala Leu Pro Glu Glu Ile Arg Glu Pro Ala Leu Arg Asp
65 70 75 80

Ala Gln Trp Thr Phe Glu Ser Ala Val Gln Glu Asn Ile Ser Ile Asn
85 90 95

Gly Gln Ala Trp Gln Glu Ala Ser Asp Asn Cys Phe Met Asp Ser Asp

Val Gly Leu Pro Ser Ile Asp Pro Ser Gly Ser Ser Pro Ser Ser Ser
165 170 175

Ser Ala Pro Leu Ala Ser Phe Ser Gly Ile Pro Gly Thr Arg Val Phe
180 185 190

Leu Gln Gly Pro Ala Pro Val Gly Thr Pro Ser Phe Asn Arg Gln His
195 200 205

Phe Ser Pro His Pro Trp Thr Ser Ala Ser Asn Ser Cys Xaa Xaa Pro
210 215 220

Ile Pro Xaa Val Ser Ser Gly Ser Ser Ser Xaa Leu Ser Ala Xaa Ser
225 230 235 240

Cys Pro Thr Asn Val Gly Ala Asn Gln Lys Gly Val Ser Ala Ser Gln
245 250 255

Gly Phe Gly Lys Val Thr Phe Pro Gln Leu Gly Asn Arg Arg Arg Thr
260 265 270

Xaa Ala Arg Ile Xaa Gly Lys Gly Gly Gly Phe Xaa Trp His Lys Ala
275 280 285

Pro Gly Gly Asn Gln Phe Phe Cys Ser Val Ser Leu Trp Asp Lys Val
290 295 300

Gly
305

<210> 1206
<211> 61
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (15)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (33)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (42)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (239)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (273)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (277)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (284)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1205
Phe Thr Ser Val Ser Cys Thr Ser Thr Ser Ser Phe Ser Ser Asn Ala
1 5 10 15

Ala Gln Arg Phe Phe Leu Leu His Gly Thr Lys Cys Asn Tyr Ser Pro
20 25 30

Gly Ser Pro Val Tyr Phe Cys Tyr Glu Ser Ser Tyr Phe Asn Thr Thr
35 40 45

Ser Arg Pro Thr Ser Cys Ser Ala Val Ser Ser Ala Val Asn Ile Met
50 55 60

Asn Gly Ser Gln Met His Ile Asn Pro Ala Asn Lys Ser Leu Pro Pro
65 70 75 80

Thr Phe Gly Pro Ala Thr Leu Phe Asn His Phe Ser Ser Leu Phe Asp
85 90 95

Ser Ser Gln Val Pro Ala Asn Gln Gly Trp Gly Asp Gly Pro Leu Ser
100 105 110

Ser Arg Val Ala Thr Asp Ala Ser Phe Thr Val Gln Ser Ala Phe Leu
115 120 125

Gly Asn Ser Val Leu Gly His Leu Glu Asn Met His Pro Asp Asn Ser
130 135 140

Lys Ala Pro Gly Phe Arg Pro Pro Ser Gln Arg Val Ser Thr Ser Pro
145 150 155 160

<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (3)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1204
Leu Ser Xaa Pro Gly Ala Trp Phe Tyr Val Pro Val Ala Met Phe Pro
1 5 10 15

Val Ser Ser Gly Cys Phe Gln Glu Gln Gln Glu Thr Asn Lys Ser Leu
20 25 30

Thr Leu Leu Arg Cys Ser Gln Arg Asp Thr Ser Pro Leu Met Asp Gly
35 40 45

Gln Thr Trp Ala Gly Ser Val Ser Leu Asn His Pro Pro Leu Pro Gln
50 55 60

Leu Pro Thr Thr Asp Thr Ser Asp Asp Thr Pro Gly Lys
65 70 75

<210> 1205
<211> 305
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (222)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (223)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (227)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (235)
<223> Xaa equals any of the naturally occurring L-amino acids

130 135 140

Lys Gly Val Leu Leu Tyr Gly Pro Pro Gly Cys Gly Lys Thr Leu Ile
145 150 155 160

Ala Lys Ala Thr Ala Lys Glu Ala Gly Cys Arg Phe Ile Asn Leu Gln
165 170 175

Pro Ser Thr Leu Thr Asp Lys Trp Tyr Gly Glu Ser Gln Lys Leu Ala
180 185 190

Ala Ala Val Phe Ser Leu Ala Ile Lys Leu Gln Pro Ser Ile Ile Phe
195 200 205

Ile Asp Glu Ile Asp Ser Phe Leu Arg Asn Arg Ser Ser Ser Asp His
210 215 220

Glu Ala Thr Ala Met Met Lys Ala Gln Phe Met Ser Leu Trp Asp Gly
225 230 235 240

Leu Asp Thr Asp His Ser Cys Gln Val Ile Val Met Gly Ala Xaa Asn
245 250 255

Arg Pro Gln Asp Leu Asp Ser Ala Ile Met Arg Arg Met Pro Thr Arg
260 265 270

Phe His Ile Asn Gln Pro Ala Leu Lys Gln Arg Glu Ala Ile Leu Lys
275 280 285

Leu Ile Leu Lys Asn Glu Asn Val Asp Arg His Val Asp Leu Leu Glu
290 295 300

Val Ala Gln Glu Thr Asp Gly Phe Ser Gly Ser Asp Leu Lys Glu Met
305 310 315 320

Cys Arg Asp Ala Ala Leu Leu Cys Val Arg Glu Tyr Val Asn Ser Thr
325 330 335

Ser Glu Glu Ser His Asp Glu Asp Glu Ile Arg Pro Val Gln Gln Gln
340 345 350

Asp Leu His Arg Ala Ile Glu Lys Met Lys Lys Ser Lys Asp Ala Ala
355 360 365

Phe Gln Asn Val Leu Thr His Val Cys Leu Asp
370 375

<210> 1204
<211> 77

35 40 45

Pro Ser Arg Val Ala Cys Thr Ile Phe Ile Ala Cys Pro Gly Trp Val
50 55 60

Gly
65

<210> 1203
<211> 379
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (132)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (255)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1203
Gly Arg Leu Arg Ala Leu Ala Leu Ala Val Ser Ala Pro Gly Leu Thr
1 5 10 15

Phe Lys Met Val His Ala Glu Ala Phe Ser Arg Pro Leu Ser Arg Asn
20 25 30

Glu Val Val Gly Leu Ile Phe Arg Leu Thr Ile Phe Gly Ala Val Thr
35 40 45

Tyr Phe Thr Ile Lys Trp Met Val Asp Ala Ile Asp Pro Thr Arg Lys
50 55 60

Gln Lys Val Glu Ala Gln Lys Gln Ala Glu Lys Leu Met Lys Gln Ile
65 70 75 80

Gly Val Lys Asn Val Lys Leu Ser Glu Tyr Glu Met Ser Ile Ala Ala
85 90 95

His Leu Val Asp Pro Leu Asn Met His Val Thr Trp Ser Asp Ile Ala
100 105 110

Gly Leu Asp Asp Val Ile Thr Asp Leu Lys Asp Thr Val Ile Leu Pro
115 120 125

Ile Lys Lys Xaa His Leu Phe Glu Asn Ser Arg Leu Leu Gln Pro Pro

Ile Lys Ser Asp His Pro Gly Ile Ser Ile Thr Asp Leu Ser Lys Lys
545 550 555 560

Ala Gly Glu Ile Trp Lys Gly Met Ser Lys Glu Lys Lys Glu Glu Trp
565 570 575

Asp Arg Lys Ala Glu Asp Ala Arg Arg Asp Tyr Glu Lys Ala Met Lys
580 585 590

Glu Tyr Glu Gly Gly Arg Gly Glu Ser Ser Lys Arg Asp Lys Ser Lys
595 600 605

Lys Lys Lys Lys Val Lys Val Lys Met Glu Lys Lys Ser Thr Pro Ser
610 615 620

Arg Gly Ser Ser Ser Lys Ser Ser Ser Arg Gln Leu Ser Glu Ser Phe
625 630 635 640

Lys Ser Lys Glu Phe Val Ser Ser Asp Glu Ser Ser Ser Gly Glu Asn
645 650 655

Lys Ser Lys Lys Lys Arg Arg Arg Ser Glu Asp Ser Glu Glu Glu Glu
660 665 670

Leu Ala Ser Thr Pro Pro Ser Ser Glu Asp Ser Ala Ser Gly Ser Asp
675 680 685

Glu

<210> 1202
<211> 65
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (38)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1202
Asn Leu Ser Glu Leu Leu Gln Ala Asp Phe Leu Gly Gln Gly Glu Ile
1 5 10 15

Met Val Leu Lys Cys Leu Ile Arg Ser His Thr Gln Phe Gln Val His
20 25 30

Tyr Ser Lys Ser Met Xaa Thr Ala Pro Thr Ala Thr Asn Leu Leu Leu

Glu Val Glu Lys Arg Phe Glu Gly Arg Leu Thr Lys Asn Met Ser Gly
275 280 285

Ser Leu Tyr Glu Met Val Ser Arg Val Met Lys Ala Leu Val Asn Arg
290 295 300

Lys Ile Thr Val Pro Gly Asn Phe Gln Gly His Ser Gly Ala Gln Cys
305 310 315 320

Ile Thr Cys Ser Tyr Lys Ala Ser Ser Gly Leu Leu Tyr Pro Leu Glu
325 330 335

Arg Gly Phe Ile Tyr Val His Lys Pro Pro Val His Ile Arg Phe Asp
340 345 350

Glu Ile Ser Phe Val Asn Phe Ala Arg Gly Thr Thr Thr Thr Arg Ser
355 360 365

Phe Asp Phe Glu Ile Glu Thr Lys Gln Gly Thr Gln Tyr Thr Phe Ser
370 375 380

Ser Ile Glu Arg Glu Glu Tyr Gly Lys Leu Phe Asp Phe Val Asn Ala
385 390 395 400

Lys Lys Leu Asn Ile Lys Asn Arg Gly Leu Lys Glu Gly Met Asn Pro
405 410 415

Ser Tyr Asp Glu Tyr Ala Asp Ser Asp Glu Asp Gln His Asp Ala Tyr
420 425 430

Leu Glu Arg Met Lys Glu Glu Gly Lys Ile Arg Glu Glu Asn Ala Asn
435 440 445

Asp Ser Ser Asp Asp Ser Gly Glu Glu Thr Asp Glu Ser Phe Asn Pro
450 455 460

Gly Glu Glu Glu Glu Asp Val Ala Glu Glu Phe Asp Ser Asn Ala Ser
465 470 475 480

Ala Ser Ser Ser Ser Asn Glu Gly Asp Ser Asp Arg Asp Glu Lys Lys
485 490 495

Arg Lys Gln Leu Lys Lys Ala Lys Met Ala Lys Asp Arg Lys Ser Arg
500 505 510

Lys Lys Pro Val Glu Val Lys Lys Gly Lys Asp Pro Asn Ala Pro Lys
515 520 525

Arg Pro Met Ser Ala Tyr Met Leu Trp Leu Asn Ala Ser Arg Glu Lys
530 535 540

<400> 1201

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Trp Ser Thr Glu Val Glu Pro Ser Gly Ile Ile Phe Lys Asn Ser Lys
  1               5                  10                  15

Thr Gly Lys Val Asp Asn Ile Gln Ala Gly Glu Leu Thr Glu Gly Ile
             20                  25                  30

Trp Arg Arg Val Ala Leu Gly His Gly Leu Lys Leu Leu Thr Lys Asn
         35                  40                  45

Gly His Val Tyr Lys Tyr Asp Gly Phe Arg Glu Ser Glu Phe Glu Lys
     50                  55                  60

Leu Ser Asp Phe Phe Lys Thr His Tyr Arg Leu Glu Leu Met Glu Lys
 65                  70                  75                  80

Asp Leu Cys Val Lys Gly Trp Asn Trp Gly Thr Val Lys Phe Gly Gly
                 85                  90                  95

Gln Leu Leu Ser Phe Asp Ile Gly Asp Gln Pro Val Phe Glu Ile Pro
            100                 105                 110

Leu Ser Asn Val Ser Gln Cys Thr Thr Gly Lys Asn Glu Val Thr Leu
        115                 120                 125

Glu Phe His Gln Asn Asp Asp Ala Glu Val Ser Leu Met Glu Val Arg
    130                 135                 140

Phe Tyr Val Pro Pro Thr Gln Glu Asp Gly Val Asp Pro Val Glu Ala
145                 150                 155                 160

Phe Ala Gln Asn Val Leu Ser Lys Ala Asp Val Ile Gln Ala Thr Gly
                165                 170                 175

Asp Ala Ile Cys Ile Phe Arg Glu Leu Gln Cys Leu Thr Pro Arg Gly
            180                 185                 190

Arg Tyr Asp Ile Arg Ile Tyr Pro Thr Phe Leu His Leu His Gly Lys
        195                 200                 205

Thr Phe Asp Tyr Lys Ile Pro Tyr Thr Thr Val Leu Arg Leu Phe Leu
    210                 215                 220

Leu Pro His Lys Asp Gln Arg Gln Met Phe Phe Val Ile Ser Leu Asp
225                 230                 235                 240

Pro Pro Ile Lys Gln Gly Gln Thr Arg Tyr His Phe Leu Ile Leu Leu
                245                 250                 255

Phe Ser Lys Asp Glu Asp Ile Ser Leu Thr Leu Asn Met Asn Glu Glu
            260                 265                 270
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<210> 1200
<211> 174
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (16)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1200
Leu Tyr Gly Cys Glu Lys Thr Thr Glu Gly Gly Gly Gly Arg Glu Xaa
1 5 10 15

Ala Gly Lys Met Val Val Thr Arg Ser Ala Arg Ala Lys Ala Ser Ile
20 25 30

Gln Ala Ala Ser Ala Glu Ser Ser Gly Gln Lys Ser Phe Ala Ala Asn
35 40 45

Gly Ile Gln Ala His Pro Glu Ser Ser Thr Gly Ser Asp Ala Arg Thr
50 55 60

Thr Ala Glu Ser Gln Thr Thr Gly Lys Gln Ser Leu Ile Pro Arg Thr
65 70 75 80

Pro Lys Ala Arg Lys Arg Lys Ser Arg Thr Thr Gly Ser Leu Pro Lys
85 90 95

Gly Thr Glu Pro Ser Thr Asp Gly Glu Thr Ser Glu Ala Glu Ser Asn
100 105 110

Tyr Ser Val Ser Glu His His Asp Thr Ile Leu Arg Val Thr Arg Arg
115 120 125

Arg Gln Ile Leu Ile Ala Cys Ser Pro Val Ser Ser Val Arg Lys Lys
130 135 140

Pro Lys Val Thr Pro Thr Lys Glu Ser Tyr Thr Glu Glu Ile Val Ser
145 150 155 160

Glu Ala Glu Ser His Val Ser Gly Ile Ser Arg Asn Cys Ala
165 170

<210> 1201
<211> 689
<212> PRT
<213> Homo sapiens

<221> SITE
<222> (194)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (195)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1199
Ser Asp Lys Trp Pro Thr Ala Val Arg Ala Asn Gly His Leu Leu Leu
1 5 10 15

Asn Ser Glu Lys Met Ser Lys Ser Thr Gly Asn Phe Leu Thr Leu Thr
20 25 30

Gln Ala Ile Asp Lys Phe Ser Ala Asp Gly Met Arg Leu Ala Leu Ala
35 40 45

Asp Ala Gly Asp Thr Val Glu Asp Ala Asn Phe Val Glu Ala Met Ala
50 55 60

Asp Ala Gly Ile Leu Arg Leu Tyr Thr Trp Val Glu Trp Val Lys Glu
65 70 75 80

Met Val Ala Asn Trp Asp Ser Leu Arg Ser Gly Pro Ala Ser Thr Phe
85 90 95

Asn Asp Arg Val Phe Ala Ser Glu Leu Asn Ala Gly Ile Ile Lys Thr
100 105 110

Asp Gln Asn Tyr Glu Lys Met Met Phe Lys Glu Ala Leu Lys Thr Gly
115 120 125

Phe Phe Glu Phe Gln Ala Ala Lys Asp Lys Tyr Arg Glu Leu Ala Val
130 135 140

Glu Gly Met His Arg Glu Leu Val Phe Arg Phe Ile Glu Val Gln Thr
145 150 155 160

Leu Leu Leu Ala Pro Phe Cys Pro His Leu Cys Glu Ala His Leu Gly
165 170 175

His Ser Trp Gly Lys Pro Asp Phe Asn Tyr Gly Met Xaa Ser Trp Ala
180 185 190

Cys Xaa Xaa Gly Pro Val
195

Gly Ser Asp Arg Ala Trp Val Trp Asn Thr His Ala Asp Phe Ala Asp
165 170 175

Glu Cys Pro Lys Pro Glu Leu Leu Ala Ile Arg Phe Leu Asn Ala Glu
180 185 190

Asn Ala Gln Lys Phe Lys Thr Lys Phe Glu Glu Cys Arg Lys Glu Ile
195 200 205

Glu Glu Arg Glu Lys Lys Ala Gly Ser Gly Lys Asn Asp His Ala Glu
210 215 220

Lys Val Ala Glu Lys Leu Glu Ala Leu Ser Val Lys Glu Glu Thr Lys
225 230 235 240

Glu Asp Ala Glu Glu Lys Gln
245

<210> 1198
<211> 60
<212> PRT
<213> Homo sapiens

<400> 1198
Phe Gly Phe Ser Thr Cys Ile Thr Asn Pro Ala Pro Ile Cys His Ile
1 5 10 15

Lys Val Cys Asp Leu Lys Phe Ser Gln His Pro His Gln Thr Leu Phe
20 25 30

Phe Tyr Val Phe Phe Ala Thr Tyr Glu Cys Phe Glu Asn Lys Val Pro
35 40 45

Met Ser Leu Leu Glu Lys Lys Lys Lys Lys Lys Lys
50 55 60

<210> 1199
<211> 198
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (189)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

Ser Phe Ile Glu Gln Val Ala Val Ser Met Thr
115 120

<210> 1197
<211> 247
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (28)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (31)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1197
Ala Arg Gly Gly Gly Lys Ser Gly Arg Ala Gly Gly Ala Gly Ala Arg
1 5 10 15

Arg Gly Gly Lys Glu Leu Arg Val Ala Ala Glu Xaa Pro Arg Xaa Gln
20 25 30

Arg Arg Pro Thr Gln Pro Ser Arg Arg Arg Arg Arg Ala Pro Met Ala
35 40 45

Ala Ala Lys Asp Thr His Glu Asp His Asp Thr Ser Thr Glu Asn Thr
50 55 60

Asp Glu Ser Asn His Asp Pro Gln Phe Glu Pro Ile Val Ser Leu Pro
65 70 75 80

Glu Gln Glu Ile Lys Thr Leu Glu Glu Asp Glu Glu Glu Leu Phe Lys
85 90 95

Met Arg Ala Lys Leu Phe Arg Phe Ala Ser Glu Asn Asp Leu Pro Glu
100 105 110

Trp Lys Glu Arg Gly Thr Gly Asp Val Lys Leu Leu Lys His Lys Glu
115 120 125

Lys Gly Ala Ile Arg Leu Leu Met Arg Arg Asp Lys Thr Leu Lys Ile
130 135 140

Cys Ala Asn His Tyr Ile Thr Pro Met Met Glu Leu Lys Pro Asn Ala
145 150 155 160

<400> 1195

Gly Arg Ala Ala Pro Gln Leu Gln Asp Leu Ala Ser Ser Cys Pro Gln
1   5   10   15

Glu Glu Val Ser Gln Gln Gln Glu Ser Val Ser Xaa Leu Pro Ala Ser
            20   25   30

Val His Pro Gln Leu Xaa His Gly Arg Ala Trp Arg Pro Ser Thr Cys
        35   40   45

Ser Thr Asp Ser Arg Ser Pro Ala Phe Cys Gln Arg Pro Arg Thr Pro
    50   55   60

Val Ser Ile Cys Cys Arg Ile Lys Arg Leu Phe Leu Gln Lys Gln Ser
65   70   75   80

Gln Leu Gln Ala Tyr Phe Asn Gln Met Gln Ile Ala Glu Ser Ser Tyr
                85   90   95

Pro Gln Pro Ser Gln Gln
            100

<210> 1196
<211> 123
<212> PRT
<213> Homo sapiens

<400> 1196

Ala Arg Gly Pro Ala Ala Ala Cys Pro Leu Arg Trp Pro Pro Ala Ala
1   5   10   15

Ala Arg Ala Met Ala Gly Lys Ala His Arg Leu Ser Ala Glu Glu Arg
            20   25   30

Asp Gln Leu Leu Pro Asn Leu Arg Ala Val Gly Trp Asn Glu Leu Glu
        35   40   45

Gly Arg Asp Ala Ile Phe Lys Gln Phe His Phe Lys Asp Phe Asn Arg
    50   55   60

Ala Phe Gly Phe Met Thr Arg Val Ala Leu Gln Ala Glu Lys Leu Asp
65   70   75   80

His His Pro Glu Trp Phe Asn Val Tyr Asn Lys Val His Ile Thr Leu
                85   90   95

Ser Thr His Glu Cys Ala Gly Leu Ser Glu Arg Asp Ile Asn Leu Ala
            100   105   110

Glu Asn His Ile Phe Val Gly Ser Lys Thr Ala Asp Pro Cys Cys Tyr
145 150 155 160

Gly His Thr Gln Phe His Leu Leu Pro Asp Lys Leu Arg Arg Glu Arg
165 170 175

Leu Leu Arg Gln Asn Cys Ala Asp Gln Ile Glu Val Val Phe Arg Ala
180 185 190

Asn Ala Ile Ala Ser Leu Phe Ala Trp Thr Gly Ala Gln Ala Met Tyr
195 200 205

Gln Gly Phe Trp Ser Glu Ala Asp Val Thr Arg Pro Phe Val Ser Gln
210 215 220

Ala Val Ile Thr Asp Gly Lys Tyr Phe Ser Phe Phe Cys Tyr Gln Leu
225 230 235 240

Asn Thr Leu Ala Leu Thr Thr Gln Ala Asp Gln Asn Asn Pro Arg Lys
245 250 255

Asn Ile Cys Trp Gly Thr Gln Ser Lys Pro Leu Tyr Glu Thr Ile Glu
260 265 270

Asp Asn Asp Val Lys Gly Phe Asn Asp Asp Val Leu Leu Gln Ile Val
275 280 285

His Phe Leu Leu Asn Arg Pro Lys Glu Glu Lys Ser Gln Leu Leu Glu
290 295 300

Asn
305

<210> 1195
<211> 102
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (28)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (38)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1193

Ser Gln Gln Thr Glu Leu Ile Thr Val Ile Leu Gly Val Phe Phe Cys
1   5   10   15

Arg Val Lys His Val Asn Ile Leu His Arg His Lys Tyr Lys His Asp
            20   25   30

Lys His Trp Thr Trp Lys Met Gly Ser Lys Phe Cys Thr Cys Ala Phe
        35   40   45

Leu Tyr Phe Cys Cys Ile Phe Xaa Ser Cys Xaa Phe Ala Lys Tyr Ile
    50   55   60

Ile Asn
65

<210> 1194
<211> 305
<212> PRT
<213> Homo sapiens

<400> 1194

Thr Cys Ala Gly Pro Arg Gly Ala Ala Cys Gly Arg Leu Arg Leu Pro
1   5   10   15

Ala Ala Gly Ala Leu Leu Pro Ala Ala Gln Arg Arg Val His Arg Tyr
            20   25   30

Glu Glu Ser Glu Val Ile Ser Leu Pro Phe Leu Asp Gln Leu Val Ser
        35   40   45

Thr Leu Val Gly Leu Leu Ser Pro His Asn Pro Ala Leu Ala Ala Ala
    50   55   60

Ala Leu Asp Tyr Arg Cys Pro Val His Phe Tyr Trp Val Arg Gly Glu
65   70   75   80

Glu Ile Ile Pro Arg Gly His Arg Arg Gly Arg Ile Asp Asp Leu Arg
                85   90   95

Tyr Gln Ile Asp Asp Lys Pro Asn Asn Gln Ile Arg Ile Ser Lys Gln
            100   105   110

Leu Ala Glu Phe Val Pro Leu Asp Tyr Ser Val Pro Ile Glu Ile Pro
        115   120   125

Thr Ile Lys Cys Lys Pro Asp Lys Leu Pro Leu Phe Lys Arg Gln Tyr
    130   135   140

20 25 30

Glu Glu Ala Ala Arg Leu Ala Ala Leu Val Gln Arg Gly Arg Leu Met
35 40 45

Gln Glu Val Asn Arg Gln Leu Gln Gly His Leu Gly Glu Ile Arg Glu
50 55 60

Leu Lys Gln Leu Asn Arg Arg Leu Gln Ala Glu Asn Arg Glu Leu Arg
65 70 75 80

Asp Leu Cys Cys Phe Leu Asp Ser Glu Arg Gln Arg Gly Arg Arg Ala
85 90 95

Ala Arg Gln Trp Gln Leu Phe Gly Thr Gln Ala Ser Arg Ala Val Arg
100 105 110

Glu Asp Leu Gly Gly Cys Trp Gln Lys Leu Ala Glu Leu Glu Gly Arg
115 120 125

Gln Glu Glu Leu Leu Arg Glu Asn Leu Ala Leu Lys Glu Leu Cys Leu
130 135 140

Ala Leu Gly Glu Glu Trp Gly Pro Arg Gly Gly Pro Ser Gly Ala Gly
145 150 155 160

Gly Ser Gly Ala Gly Pro Ala Pro Glu Leu Ala Leu Pro Pro Cys Gly
165 170 175

Pro Arg Asp Leu Gly Asp Gly Ser Ser Ser Thr Gly Ser Val Gly Ser
180 185 190

Pro Asp Gln Leu Pro Leu Ala Cys Ser Pro Asp Asp
195 200

<210> 1193
<211> 66
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (56)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (59)
<223> Xaa equals any of the naturally occurring L-amino acids

Pro Lys Lys Asp Ile Ile Lys Phe Leu Gln Glu His Gly Ser Asp Ser
35 40 45

Phe Leu Ala Glu His Lys Leu Leu Gly Asn Ile Lys Asn Val Ala Lys
50 55 60

Thr Ala Asn Lys Asp His Leu Val Thr Ala Tyr Asn His Leu Phe Glu
65 70 75 80

Thr Lys Arg Phe Lys Gly Thr Glu Ser Ile Ser Lys Val Ser Glu Gln
85 90 95

Val Lys Asn Val Lys Leu Asn Glu Asp Lys Pro Lys Glu Thr Lys Ser
100 105 110

Glu Glu Thr Leu Asp Glu Gly Pro Pro Lys Tyr Thr Lys Ser Val Leu
115 120 125

Lys Lys Gly Asp Lys Thr Asn Phe Pro Lys Lys Gly Asp Val Val His
130 135 140

Cys Trp Tyr Thr Gly Thr Leu Gln Asp Gly Thr Val Phe Asp Thr Asn
145 150 155 160

Ile Gln Thr Ser Ala Lys Lys Lys Lys Asn Ala Lys Pro Leu Ser Phe
165 170 175

Lys Val Gly Val Gly Lys Val Ile Arg Gly Trp Asp Glu Ala Leu Leu
180 185 190

Thr Met Ser Lys Gly Glu Lys Ala Arg Leu Glu Ile Glu Pro Glu Trp
195 200 205

Ala Tyr Gly Lys Lys Gly Gln Pro Asp Ala Lys Ile Pro Pro Asn Ala
210 215 220

Lys Leu Thr Phe Glu Val Glu Leu Val Asp Ile Asp
225 230 235

<210> 1192
<211> 204
<212> PRT
<213> Homo sapiens

<400> 1192
Pro Ala Met Glu Ala Glu Ala Gly Gly Leu Glu Glu Leu Thr Asp Glu
1 5 10 15

Glu Met Ala Ala Leu Gly Lys Glu Glu Leu Val Arg Arg Leu Arg Arg

<221> SITE
<222> (14)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (25)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1190
Leu Xaa Gln Lys Thr Gln Pro Thr His Glu Lys Xaa Ala Xaa Ser Phe
1 5 10 15

Leu Gly Met Val Cys Ile Trp Val Xaa Ser Ile Gln Thr Ser Ile Asn
20 25 30

Thr Ser Phe Ile Leu Gly Leu Pro Asn Ser Phe Pro Gln Asp Leu Lys
35 40 45

Thr Ile Thr Met Ile Lys Val Ser Phe Ala Pro Cys Gln Arg Leu Gly
50 55 60

Pro Leu Pro Phe Pro Ser Arg Gln Tyr Ser Val Gln Leu Gly Leu Val
65 70 75 80

Pro Ser Leu Ser Val Arg Thr Glu Phe His Pro Arg Phe Ser Thr Gln
85 90 95

Ala Leu Cys Ser Gly Lys Val Lys Pro Ser Leu Lys Gly Ser Lys Ser
100 105 110

Ser Ala Ile Asp Arg Ala Ala Gly Gly Lys Arg Ser Arg Cys Ile Arg
115 120 125

<210> 1191
<211> 236
<212> PRT
<213> Homo sapiens

<400> 1191
Arg Ala Gly Ser Val Lys Arg Arg Gln Arg Gly Lys Met Ala Ala Ala
1 5 10 15

Val Pro Gln Arg Ala Trp Thr Val Glu Gln Leu Arg Ser Glu Gln Leu
20 25 30

<210> 1189
<211> 136
<212> PRT
<213> Homo sapiens

<400> 1189
Asp Ile Ser Thr Pro Ser Leu Thr Thr Asp His Ala Pro Leu Thr Ile
1   5   10   15

Ser Leu Lys Pro Asn His Pro Tyr Arg Thr Gln Cys Gln Tyr Pro Ile
            20   25   30

Pro Gln His Ala Leu Lys Arg Leu Lys Pro Val Ile Ile Arg Leu Leu
        35   40   45

Gln His Gly Leu Leu Asn Pro Ile Asn Ser Pro Tyr Asn Ser Pro Ile
    50   55   60

Phe Pro Val Leu Lys Arg Asp Lys Pro Tyr Lys Leu Val Gln Asp Leu
65   70   75   80

Arg Leu Ile Asn Gln Ile Val Leu Pro Ile His Pro Val Val Pro Asn
                85   90   95

Pro Tyr Thr Leu Leu Ser Ser Ile Pro Pro Ser Thr Thr His Tyr Ser
            100   105   110

Val Leu Asp Leu Arg His Ala Phe Phe Thr Ile Ala Leu His Pro Ser
        115   120   125

Ser Gln Pro Leu Phe Ala Phe Thr
    130   135

<210> 1190
<211> 128
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (2)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (12)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

Asp Gly Leu Arg Ala Trp Ile Lys Lys Lys Gly Leu Asp Trp Val Lys
100 105 110

Glu Glu Ala Pro Asp Ile Leu Cys Leu Gln Glu Thr Lys Cys Ser Glu
115 120 125

Asn Lys Leu Pro Ala Glu Leu Gln Glu Leu Pro Gly Leu Ser His Gln
130 135 140

Tyr Trp Ser Ala Pro Ser Asp Lys Glu Gly Tyr Ser Gly Val Gly Leu
145 150 155 160

Leu Ser Arg Gln Cys Pro Leu Lys Val Ser Tyr Gly Ile Gly Xaa Glu
165 170 175

Glu His Asp Gln Glu Gly Arg Val Ile Val Ala Glu Phe Asp Ser Phe
180 185 190

Val Leu Val Thr Ala Tyr Val Pro Asn Ala Gly Arg Gly Leu Val Arg
195 200 205

Leu Glu Tyr Arg Gln Arg Trp Asp Glu Ala Phe Arg Lys Phe Leu Lys
210 215 220

Gly Leu Ala Ser Arg Lys Pro Leu Val Leu Cys Gly Asp Leu Asn Val
225 230 235 240

Ala His Glu Glu Ile Asp Leu Arg Asn Pro Lys Gly Asn Lys Lys Asn
245 250 255

Ala Gly Phe Thr Pro Gln Glu Arg Gln Gly Phe Gly Glu Leu Leu Gln
260 265 270

Ala Val Pro Leu Ala Asp Ser Phe Arg His Leu Tyr Pro Asn Thr Pro
275 280 285

Tyr Ala Tyr Thr Phe Trp Thr Tyr Met Met Asn Ala Arg Ser Lys Asn
290 295 300

Val Gly Trp Arg Leu Asp Tyr Phe Leu Leu Ser His Ser Leu Leu Pro
305 310 315 320

Ala Leu Cys Asp Ser Lys Ile Arg Ser Lys Ala Leu Gly Ser Asp His
325 330 335

Cys Pro Ile Thr Leu Tyr Leu Ala Leu
340 345

Gly Gly Pro Ser Asp Pro Pro Thr Arg Leu Ser Leu Ser Arg Ser Asp
385 390 395 400

Glu Arg Arg Gly Thr Leu Ser Gly Ala Pro Ala Pro Pro Thr Arg His
405 410 415

Asp Phe Ser Phe Asp Arg Val Phe Pro Pro Gly Ser Gly Gln Asp Glu
420 425 430

Val Phe Glu Glu Ile Ala Met Leu Val Gln Ser Ala Leu Asp Gly Tyr
435 440 445

Pro Xaa Cys Ile Phe Ala Tyr Gly Gln Thr Xaa Ser Gly Lys Thr Phe
450 455 460

Thr Met Glu Gly Gly Leu Gly Glu Thr Pro Xaa Gly Arg Ala Asp Pro
465 470 475 480

Ser Gly

<210> 1188
<211> 345
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (175)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1188
Thr Ala Ser Leu Ser Asn Ala Val Lys Ile Leu Leu Arg Trp Val Thr
1 5 10 15

Arg Tyr Ser Cys Pro Arg Ala Phe Val Thr Gly Met Pro Lys Arg Gly
20 25 30

Lys Lys Gly Ala Val Ala Glu Asp Gly Asp Glu Leu Arg Thr Glu Pro
35 40 45

Glu Ala Lys Lys Ser Lys Thr Ala Ala Lys Lys Asn Asp Lys Glu Ala
50 55 60

Ala Gly Glu Gly Pro Ala Leu Tyr Glu Asp Pro Pro Asp Gln Lys Thr
65 70 75 80

Ser Pro Ser Gly Lys Pro Ala Thr Leu Lys Ile Cys Ser Trp Asn Val
85 90 95

Pro Arg Val Pro Ser Leu Thr Thr Val Pro Gln Thr Gln Gly Gln Thr
115 120 125

Thr Ala Gln Lys Val Ser Lys Lys Thr Gly Pro Arg Cys Ser Thr Ala
130 135 140

Ile Ala Thr Gly Leu Lys Asn Gln Lys Pro Val Pro Ala Val Pro Val
145 150 155 160

Gln Lys Ser Gly Thr Ser Gly Val Pro Pro Met Ala Gly Gly Lys Lys
165 170 175

Pro Ser Lys Arg Pro Ala Trp Asp Leu Lys Gly Gln Leu Cys Asp Leu
180 185 190

Asn Ala Glu Leu Lys Arg Cys Arg Glu Arg Thr Gln Thr Leu Asp Gln
195 200 205

Glu Asn Gln Gln Leu Gln Asp Gln Leu Arg Asp Ala Gln Gln Gln Val
210 215 220

Lys Ala Leu Gly Thr Glu Arg Thr Thr Leu Glu Gly His Leu Ala Lys
225 230 235 240

Val Gln Ala Gln Ala Glu Gln Gly Gln Gln Glu Leu Lys Asn Leu Arg
245 250 255

Ala Cys Xaa Leu Glu Leu Glu Glu Arg Leu Ser Thr Gln Glu Gly Leu
260 265 270

Val Gln Glu Leu Gln Lys Lys Gln Val Glu Leu Gln Glu Glu Arg Arg
275 280 285

Gly Leu Met Ser Gln Leu Glu Glu Lys Glu Arg Arg Leu Gln Thr Ser
290 295 300

Glu Ala Ala Leu Ser Ser Ser Gln Ala Glu Val Ala Ser Leu Arg Gln
305 310 315 320

Glu Thr Val Ala Gln Ala Ala Leu Leu Thr Glu Arg Glu Glu Arg Leu
325 330 335

His Gly Leu Glu Met Glu Arg Arg Arg Leu His Asn Gln Leu Gln Glu
340 345 350

Leu Lys Gly Asn Ile Arg Val Phe Cys Arg Val Arg Pro Val Leu Pro
355 360 365

Gly Glu Pro Thr Pro Pro Pro Gly Leu Leu Leu Phe Pro Ser Gly Pro
370 375 380

<221> SITE
<222> (31)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (105)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (259)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (450)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (459)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (475)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1187
```
Ala Gly Leu Val Ala Ala Gly Ala Val Arg Xaa Leu Tyr Pro Ala Ser
1               5                   10                  15

Arg Ala Gly Glu Arg Thr Arg Val Pro Gly Ser Pro Ala Pro Xaa Ser
            20                  25                  30

Leu Pro Leu His Ser Pro Gly Ala Cys Gly Thr Glu Val Asp Met Asp
        35                  40                  45

Pro Gln Arg Ser Pro Leu Leu Glu Val Lys Gly Asn Ile Glu Leu Lys
    50                  55                  60

Arg Pro Leu Ile Lys Ala Pro Ser Gln Leu Pro Leu Ser Gly Ser Arg
65                  70                  75                  80

Leu Lys Arg Arg Pro Asp Gln Met Glu Asp Gly Leu Glu Pro Glu Lys
                85                  90                  95

Lys Arg Thr Arg Gly Leu Gly Ala Xaa Thr Lys Ile Thr Thr Ser His
            100                 105                 110
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                165                 170                 175

Lys Leu Phe Leu Ile Asp Phe Gly Leu Ala Lys Lys Tyr Arg Asp Asn
            180                 185                 190

Arg Thr Arg Gln His Ile Pro Tyr Arg Glu Asp Lys Asn Leu Thr Gly
        195                 200                 205

Thr Ala Arg Tyr Ala Ser Ile Asn Ala His Leu Gly Ile Glu Gln Ser
    210                 215                 220

Arg Arg Asp Asp Met Glu Ser Leu Gly Tyr Val Leu Met Tyr Phe Asn
225                 230                 235                 240

Arg Thr Ser Leu Pro Trp Gln Gly Leu Lys Ala Ala Thr Lys Lys Gln
                245                 250                 255

Lys Tyr Glu Lys Ile Ser Glu Lys Lys Met Ser Thr Pro Val Glu Val
            260                 265                 270

Leu Cys Lys Gly Phe Pro Ala Glu Phe Ala Met Tyr Leu Asn Tyr Cys
        275                 280                 285

Arg Gly Leu Arg Phe Glu Glu Ala Pro Asp Tyr Met Tyr Leu Arg Gln
    290                 295                 300

Leu Phe Arg Ile Leu Phe Arg Thr Leu Asn His Gln Tyr Asp Tyr Thr
305                 310                 315                 320

Phe Asp Trp Asp Asn Val Lys Ala Glu Ser Ser Thr Ala Gly Ser Leu
                325                 330                 335

Phe Gln Trp Ala Gly Ser Ala Gly Pro Asn Pro His Arg Gln Ala Asn
            340                 345                 350
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<210> 1187
<211> 482
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (11)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

Asn Gln Pro Pro Pro Pro Ala Ser Leu Pro Ser Val Pro Phe Ile Leu
50 55 60

Pro Gly Val Pro Ser Ala Cys His Gly Thr Ala Cys Tyr Leu Xaa Gln
65 70 75 80

Leu Gln Met Pro Ala Leu Asn Leu Pro Trp Xaa Pro Phe Leu Tyr Xaa
85 90 95

Val Asn Ser Leu Asn Ser Ala Leu Pro Leu Pro Ala Leu Lys
100 105 110

<210> 1186
<211> 352
<212> PRT
<213> Homo sapiens

<400> 1186
Cys Arg Ser Pro Glu Ala Ser Val Leu Phe Pro Glu Val Ser Gly Leu
1 5 10 15

Gly Gln Pro Pro Ser Ser Ser Leu Arg Met Ala Ser Ser Ser Gly Ser
20 25 30

Lys Ala Glu Phe Ile Val Gly Gly Lys Tyr Lys Leu Val Arg Lys Ile
35 40 45

Gly Ser Gly Ser Phe Gly Asp Ile Tyr Leu Ala Ile Asn Ile Thr Asn
50 55 60

Gly Glu Glu Val Ala Val Lys Leu Glu Ser Gln Lys Ala Arg His Pro
65 70 75 80

Gln Leu Leu Tyr Glu Ser Lys Leu Tyr Lys Ile Leu Gln Gly Gly Val
85 90 95

Gly Ile Pro His Ile Arg Trp Tyr Gly Gln Glu Lys Asp Tyr Asn Val
100 105 110

Leu Val Met Asp Leu Leu Gly Pro Ser Leu Glu Asp Leu Phe Asn Phe
115 120 125

Cys Ser Arg Arg Phe Thr Met Lys Thr Val Leu Met Leu Ala Asp Gln
130 135 140

Met Ile Ser Arg Ile Glu Tyr Val His Thr Lys Asn Phe Ile His Arg
145 150 155 160

Asp Ile Lys Pro Asp Asn Phe Leu Met Gly Ile Gly Arg His Cys Asn

Asn Ala Glu Ser Gly Ala Ile Asp Val Lys Phe Phe Val Leu Ser Glu
85 90 95

Lys Gly Val Ile Ile Val Ser Leu Ile Phe Asp Gly Asn Trp Asn Gly
100 105 110

Asp Arg Ser Thr Tyr Gly Leu Ser Ile Ile Leu Pro Gln Thr Glu Leu
115 120 125

Ser Phe Tyr Leu Pro Leu His Arg Val Cys Val Asp Arg Leu Thr His
130 135 140

Ile Ile Arg Lys Gly Arg Ile Trp Met His Lys Glu Arg Xaa Glu Met
145 150 155 160

Ser Arg Arg Leu Ser
165

<210> 1185
<211> 110
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (79)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (91)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (96)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1185
Gly Thr Ala Phe Thr Arg Gln Cys Ser Gln Gly Pro Trp Tyr Arg Ala
1 5 10 15

Arg Ser Arg Val Pro Gln Val Val Arg Leu Pro Gly Pro His Leu Glu
20 25 30

Pro Ser Leu Cys Ser Phe Glu Ser Arg Cys Cys Pro Thr Pro Ile Pro
35 40 45

<222> (25)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1182
Lys Thr Gly Ala Cys Pro Glu Asp Xaa Lys Tyr Cys Pro Gln Ser Ser
1 5 10 15

Arg Tyr Lys Thr Gly Leu Glu Pro Xaa Gly
20 25

<210> 1183
<211> 17
<212> PRT
<213> Homo sapiens

<400> 1183
Gly Gln Glu Ile Glu Thr Val Leu Ala Asn Met Val Lys Pro Arg Leu
1 5 10 15

Tyr

<210> 1184
<211> 165
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (158)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1184
Cys Asp Ser Trp Asn Ala Val Met Ser Thr Leu Cys Pro Pro Pro Ser
1 5 10 15

Pro Ala Val Ala Lys Thr Glu Ile Ala Leu Ser Gly Lys Ser Pro Leu
20 25 30

Leu Ala Ala Thr Phe Ala Tyr Trp Asp Asn Ile Leu Gly Pro Arg Val
35 40 45

Arg His Ile Trp Ala Pro Lys Thr Glu Gln Val Leu Leu Ser Asp Gly
50 55 60

Glu Ile Thr Phe Leu Ala Asn His Thr Leu Asn Gly Glu Ile Leu Arg
65 70 75 80

Cys Ser Val Ser Gly Met Thr Xaa Lys Tyr Met Tyr Gly Val Asn Ala
245 250 255

Trp Lys Asn Trp Val Gln Trp Lys Asn Ala Lys Glu Glu Gln Gly Asp
260 265 270

Leu Lys Cys Gly Gly Val Glu Gln Ala Ser Ser Ser Pro Arg Ser Asp
275 280 285

Pro Leu Gly Ser Thr Gln Asp His Ala Leu Ser Gln Glu Ser Ser Glu
290 295 300

Pro Gly Cys Arg Val Arg Ser Ile Lys Leu Lys Glu Asp Ile Leu Ser
305 310 315 320

Cys Thr Phe Ala Glu Leu Ser Leu Gly Leu Cys Gln Phe Ile Gln Glu
325 330 335

Val Arg Arg Pro Asn Gly Glu Lys Tyr Asp Pro Asp Ser Ile Leu Tyr
340 345 350

Leu Cys Leu Gly Ile Gln Gln Tyr Leu Phe Glu Asn Gly Arg Ile Asp
355 360 365

Asn Ile Phe Thr Glu Pro Tyr Ser Arg Phe Met Ile Glu Leu Thr Lys
370 375 380

Leu Leu Lys Ile Trp Glu Pro Thr Ile Leu Pro Asn Gly Tyr Met Phe
385 390 395 400

Ser Arg Ile Glu Glu Glu His Leu Trp Glu Cys Lys Gln Leu Gly Ala
405 410 415

Tyr Ser Pro Ile Ala Phe
420

<210> 1182
<211> 26
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (9)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE

<220>
<221> SITE
<222> (248)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1181
Ser His Leu Leu Gln Thr Thr Tyr Pro Lys Gln Arg Met Pro Asp Arg
1 5 10 15

Arg His Ser Lys Ser Ala Gln Ile Ile Xaa Xaa Pro Val Pro Tyr Gln
20 25 30

Xaa Xaa Ser His Thr Ser Tyr Leu Tyr Thr Gln Tyr Ala Pro Val Pro
35 40 45

Phe Gly Ile Pro Xaa Pro Met Pro Xaa Pro Met Leu Ile Pro Ser Ser
50 55 60

Met Asp Ser Glu Asp Lys Val Thr Glu Ser Ile Glu Asp Ile Lys Glu
65 70 75 80

Lys Leu Pro Thr His Pro Phe Glu Ala Asp Leu Leu Glu Met Ala Glu
85 90 95

Met Ile Ala Glu Asp Glu Glu Lys Lys Thr Leu Ser Gln Gly Glu Ser
100 105 110

Gln Thr Ser Glu His Glu Leu Phe Leu Asp Thr Lys Ile Phe Glu Lys
115 120 125

Xaa Gln Gly Ser Thr Tyr Ser Gly Asp Leu Glu Ser Glu Ala Val Ser
130 135 140

Thr Pro His Ser Trp Glu Glu Glu Leu Asn His Tyr Ala Leu Lys Ser
145 150 155 160

Asn Ala Val Gln Glu Ala Asp Ser Glu Leu Lys Gln Phe Ser Lys Gly
165 170 175

Glu Thr Glu Arg Thr Trp Lys Gln Ile Phe His Gln Thr Pro Leu Thr
180 185 190

His Leu Ile Lys Asp Gly Asn Pro Gly Thr Phe Pro Asn Arg Arg Arg
195 200 205

His Arg Asp Gly Phe Pro Gln Pro Arg Arg Arg Gly Arg Lys Lys Ser
210 215 220

Ile Val Ala Val Glu Pro Arg Ser Leu Ile Gln Gly Ala Phe Gln Gly
225 230 235 240

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Lys Gln Ile Ile Lys Leu Leu Pro Thr Arg Arg Gln Thr Met Leu Phe
            340                 345                 350

Ser Ala Thr Gln Thr Arg Lys Xaa Glu Xaa Leu Ala Arg Ile Ser Leu
        355                 360                 365

Lys Lys Glu Pro Leu Val Cys Trp Arg
    370                 375
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<210> 1181
<211> 422
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (26)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (27)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (33)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (34)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (53)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (57)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (129)
<223> Xaa equals any of the naturally occurring L-amino acids

Glu Ala Val Gly Asn Ile Lys Val Thr Lys Ser Pro Gln Lys Ser Thr
65 70 75 80

Val Leu Ser Asn Gly Glu Ala Ala Met Gln Ser Ser Asn Ser Glu Ser
85 90 95

Lys Lys Lys Lys Lys Lys Lys Arg Lys Met Val Asn Asp Ala Glu Pro
100 105 110

Asp Thr Lys Lys Ala Lys Thr Glu Asn Lys Gly Lys Ser Glu Glu Glu
115 120 125

Ser Ala Glu Thr Thr Lys Glu Thr Glu Asn Asn Val Glu Lys Pro Asp
130 135 140

Asn Asp Glu Asp Glu Ser Glu Val Pro Ser Leu Pro Leu Gly Leu Thr
145 150 155 160

Gly Ala Phe Glu Asp Thr Ser Phe Ala Ser Leu Cys Asn Leu Val Asn
165 170 175

Glu Asn Thr Leu Lys Ala Ile Lys Glu Met Gly Phe Thr Asn Met Thr
180 185 190

Glu Ile Gln His Lys Ser Ile Arg Pro Leu Leu Glu Gly Arg Asp Leu
195 200 205

Leu Ala Ala Ala Lys Thr Gly Ser Gly Lys Thr Leu Ala Phe Leu Ile
210 215 220

Pro Ala Val Glu Leu Ile Val Lys Leu Arg Phe Met Pro Arg Asn Gly
225 230 235 240

Thr Gly Val Leu Ile Leu Ser Pro Thr Arg Glu Leu Ala Met Gln Thr
245 250 255

Phe Gly Val Leu Lys Glu Leu Met Thr His His Val His Thr Tyr Gly
260 265 270

Leu Ile Met Gly Gly Ser Asn Arg Ser Ala Glu Ala Gln Lys Leu Gly
275 280 285

Asn Gly Ile Asn Ile Ile Val Ala Thr Pro Gly Arg Leu Leu Asp His
290 295 300

Met Gln Asn Thr Pro Gly Phe Met Tyr Lys Asn Leu Gln Cys Leu Val
305 310 315 320

Ile Asp Glu Xaa Asp Arg Ile Leu Asp Val Gly Phe Glu Glu Glu Leu
325 330 335

Ser Leu Val Thr His Lys Arg Thr His Ser Gly Glu Lys Pro Tyr Thr
        195   200   205

Cys His Ala Cys Gly Lys Ala Phe Asn Thr Ser Ser Thr Leu Cys Xaa
    210   215   220

His Xaa Arg Ile His Thr Gly Glu Lys Pro Phe Gln Cys Ser Gln Cys
225   230   235   240

Gly Lys Ser Leu Val Phe Ser Cys Arg
                245

<210> 1180
<211> 377
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (12)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (324)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (360)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (362)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1180
Glu Asp Arg Glu Ala Glu Pro Gln Ile Ala Ala Xaa Asn Leu Lys Phe
1   5   10   15

Gln Gly Ala Ser Asn Leu Thr Leu Ser Glu Thr Gln Asn Gly Asp Val
            20   25   30

Ser Glu Glu Thr Met Gly Ser Arg Lys Val Lys Lys Ser Lys Gln Lys
        35   40   45

Pro Met Asn Val Gly Leu Ser Glu Thr Gln Asn Gly Gly Met Ser Gln
    50   55   60

<221> SITE
<222> (109)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (224)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (226)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1179

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His Glu Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Lys Glu Cys
  1               5                  10                  15

Arg Lys Thr Phe Ser Gln Met Thr His Leu Thr Gln His Gln Thr Thr
             20                  25                  30

His Thr Arg Glu Lys Phe His Glu Cys Ser Glu Cys Gly Lys Ala Phe
         35                  40                  45

Ser Arg Val Ser Ala Leu Ile Asp His Gln Arg Ile His Ser Gly Glu
     50                  55                  60

Xaa Pro Tyr Glu Cys Lys Xaa Cys Gly Arg Ala Phe Thr Gln Ser Ala
 65                  70                  75                  80

Gln Leu Ile Xaa His Gln Lys Thr His Ser Gly Glu Lys Pro Tyr Glu
                 85                  90                  95

Cys Ser Lys Cys Lys Lys Ser Phe Val His Leu Ser Xaa Leu Ile Glu
            100                 105                 110

His Trp Arg Ile His Thr Gly Glu Lys Pro Tyr Gln Cys Lys Asp Cys
        115                 120                 125

Lys Lys Thr Phe Cys Arg Val Met Gln Phe Thr Leu His Arg Arg Ile
    130                 135                 140

His Thr Gly Glu Lys Pro Tyr Glu Cys Lys Glu Cys Gly Lys Ser Phe
145                 150                 155                 160

Ser Ala His Ser Ser Leu Val Thr His Lys Arg Thr His Ser Gly Glu
                165                 170                 175

Lys Pro Tyr Lys Cys Lys Glu Cys Gly Lys Ala Phe Ser Ala His Ser
            180                 185                 190
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Gly Leu Ala Ile Ser Pro Gly Met Lys Thr Arg Ile Arg Met Gly Gln
65 70 75 80

Tyr Glu Phe Pro Asn Pro Glu Trp Ser Glu Val Ser Glu Glu Val Lys
85 90 95

Met Leu Ile Arg Asn Leu Leu Lys Thr Glu Pro Thr Gln Arg Met Thr
100 105 110

Ile Thr Glu Phe Met Asn His Pro Trp Ile Met Gln Ser Thr Lys Val
115 120 125

Pro Gln Thr Pro Leu His Thr Ser Arg Val Leu Lys Glu Asp Lys Glu
130 135 140

Arg Trp Glu Asp Val Lys Glu Glu Met Thr Ser Ala Leu Ala Thr Met
145 150 155 160

Arg Val Asp Tyr Glu Gln Ile Lys Ile Lys Lys Ile Glu Asp Ala Ser
165 170 175

Asn Pro Leu Leu Leu Lys Arg Arg Lys Lys Ala Arg Ala Leu Glu Ala
180 185 190

Ala Ala Leu Ala His
195

<210> 1179
<211> 249
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (65)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (71)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (84)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<210> 1177
<211> 95
<212> PRT
<213> Homo sapiens

<400> 1177
His Ile Ala Lys Val Ser Cys Thr Leu Leu Gln Gly Asn Val Ser Phe
1 5 10 15

Met Ala Leu Lys His Leu Gly Lys Lys Lys Met Phe Lys Arg Ile Asn
20 25 30

Arg Ala Val Val Cys Ile Arg Met Cys Val Ile Cys Val Phe Tyr Lys
35 40 45

Leu Ser Ile Gly Gly Phe Arg Val Leu Lys Cys Gln His Ile Pro Ser
50 55 60

Pro Phe Val Ser Gln Ala Asn Met Arg Glu Asn Arg Lys Val Leu Ala
65 70 75 80

Val Gly Ile Gly Ser Ser Gly Gly Gln Met Ser Leu Pro Asp Pro
85 90 95

<210> 1178
<211> 197
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (10)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1178
Asn Ser Leu Thr Leu Ala Leu Pro Arg Xaa Thr Thr Ser His Asn Ser
1 5 10 15

Leu Thr Thr Pro Cys Tyr Thr Pro Tyr Tyr Val Ala Pro Glu Val Leu
20 25 30

Gly Pro Glu Lys Tyr Asp Lys Ser Cys Asp Met Trp Ser Leu Gly Val
35 40 45

Ile Met Tyr Ile Leu Leu Cys Gly Tyr Pro Pro Phe Tyr Ser Asn His
50 55 60

Arg Thr

<210> 1176
<211> 188
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (182)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1176
Gln Arg Leu Glu Ser Gly Asp Cys Ile Gly Val Leu Asp Cys Glu Trp
1 5 10 15

Cys Met Val Asp Ser Asp Gly Lys Thr His Leu Asp Lys Pro Tyr Cys
20 25 30

Ala Pro Gln Lys Glu Cys Phe Gly Gly Ile Val Gly Ala Lys Ser Pro
35 40 45

Tyr Val Asp Asp Met Gly Ala Ile Gly Asp Glu Val Ile Thr Leu Asn
50 55 60

Met Ile Lys Ser Ala Pro Val Gly Pro Val Ala Gly Gly Ile Met Gly
65 70 75 80

Cys Ile Met Val Leu Val Leu Ala Val Tyr Ala Tyr Arg His Gln Ile
85 90 95

His Arg Arg Ser His Gln His Met Ser Pro Leu Ala Ala Gln Glu Met
100 105 110

Ser Val Arg Met Ser Asn Leu Glu Asn Asp Arg Asp Glu Arg Asp Asp
115 120 125

Asp Ser His Glu Asp Arg Gly Ile Ile Ser Asn Thr Arg Phe Ile Ala
130 135 140

Ala Val Ile Glu Arg His Ala His Ser Pro Glu Arg Arg Arg Arg Tyr
145 150 155 160

Trp Gly Arg Ser Gly Thr Glu Ser Asp His Gly Tyr Ser Thr Met Ser
165 170 175

Pro Gln Glu Asp Ser Xaa Lys Ser Ser Met Gln Gln
180 185

305 310 315 320

Met Ser Leu Cys Gln Leu Arg Cys Leu Pro Phe Arg Ala Leu His Phe
325 330 335

Val Phe Ser Pro Gly Phe Ile Asn Tyr Ile Ser Gly Thr Gln Pro Gly
340 345 350

Trp Leu Ala Gly Pro Leu Arg Ala Gly Glu Ala Gly Glu Gln Gly Gly
355 360 365

Leu Gln Pro Arg Ala Pro Val Pro Ala Ser Pro Gln Ala Pro Leu Met
370 375 380

Leu
385

<210> 1175
<211> 114
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (50)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1175
His Glu Gln Asp Pro Lys Trp Gln Arg Cys Arg Leu Ser Trp Glu Ser
1 5 10 15

Glu Pro Leu Trp Leu Phe Gly Arg Leu Met Val Thr Leu Lys Tyr Cys
20 25 30

Leu Pro Leu Val Ser Arg Pro Ser Ser Ile Arg Trp Glu Arg Arg Pro
35 40 45

Gln Xaa Met Cys Leu Ser Asp His Gly Ala Ser Cys Pro Ala Leu Gly
50 55 60

Lys Thr Glu Thr Lys Ser Ser Gln Leu Ala Leu Gly Glu Gly Leu Phe
65 70 75 80

Pro Leu Pro Leu Ala His Phe Gln Glu Phe Asp Ser Glu Ser Arg Ala
85 90 95

Ala Val Pro Gly Arg Val Cys Thr His Ile Cys Val Gly Arg Lys Lys
100 105 110

35 40 45

Arg Leu Ser Gly Leu Leu Leu Ile Pro Pro Val Gln Pro Cys Cys Leu
50 55 60

Gly Pro Ser Lys Trp Gly Asp Arg Pro Val Gly Gly Gly Pro Ser Ala
65 70 75 80

Gly Pro Val Gln Gly Leu Gln Arg Leu Leu Glu Gln Ala Lys Ser Pro
85 90 95

Gly Glu Leu Leu Arg Trp Leu Gly Gln Asn Pro Ser Lys Val Arg Ala
100 105 110

His His Tyr Ser Val Ala Leu Arg Arg Leu Gly Gln Leu Leu Gly Ser
115 120 125

Arg Pro Arg Pro Pro Pro Val Glu Gln Val Thr Leu Gln Asp Leu Ser
130 135 140

Gln Leu Ile Ile Arg Asn Cys Pro Ser Phe Asp Ile His Thr Ile His
145 150 155 160

Val Cys Leu His Leu Ala Val Leu Leu Gly Phe Pro Ser Asp Gly Pro
165 170 175

Leu Val Cys Ala Leu Glu Gln Glu Arg Arg Leu Ala Xaa Pro Pro Lys
180 185 190

Pro Pro Pro Pro Leu Gln Pro Leu Leu Arg Gly Gly Gln Gly Leu Glu
195 200 205

Ala Ala Leu Ser Cys Pro Arg Phe Leu Arg Tyr Pro Arg Gln His Leu
210 215 220

Ile Ser Ser Leu Ala Glu Ala Arg Pro Glu Glu Leu Thr Pro His Val
225 230 235 240

Met Val Leu Leu Ala Gln His Leu Ala Arg His Arg Leu Arg Glu Pro
245 250 255

Gln Leu Leu Glu Ala Ile Ala His Phe Leu Val Val Gln Glu Thr Gln
260 265 270

Leu Ser Ser Lys Val Val Gln Lys Leu Val Leu Pro Phe Gly Arg Leu
275 280 285

Asn Tyr Leu Pro Leu Glu Gln Gln Phe Met Pro Cys Leu Glu Arg Ile
290 295 300

Leu Ala Arg Glu Ala Gly Val Ala Xaa Leu Ala Thr Val Asn Ile Leu

1 5 10 15

Leu Leu Trp Asn Met Phe Ser Lys Glu Val Glu Leu Ala Asp Ser Met
20 25 30

Gln Thr Leu Phe Arg Gly Asn Ser Leu Ala Ser Lys Ile Met Thr Phe
35 40 45

Cys Phe Lys Val Tyr Gly Ala Thr Tyr Leu Gln Lys Leu Leu Xaa Pro
50 55 60

Leu Leu Arg Ile Val Ile Thr Ser Ser Asp Trp Gln His Val Ser Phe
65 70 75 80

Glu Val Asp Pro Thr Xaa Leu Glu Pro Ser Glu Ser Leu Glu Glu Asn
85 90 95

Gln Arg Asn Leu Leu Gln Met Thr Glu Lys Phe Phe His Ala Ile Ile
100 105 110

Ser Ser Ser Ser Glu Phe Pro Pro Gln Leu Arg Ser Val Cys His Cys
115 120 125

Leu Tyr Gln Ala Thr Tyr His Ser Leu Leu Asn Lys Ala Thr
130 135 140

<210> 1174
<211> 385
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (189)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (313)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1174
Pro Met Arg Arg Pro Arg Gly Glu Pro Gly Pro Arg Ala Pro Arg Pro
1 5 10 15

Thr Glu Gly Ala Thr Cys Ala Gly Pro Gly Glu Ser Trp Ser Pro Ser
20 25 30

Pro Asn Ser Met Leu Arg Val Leu Leu Ser Ala Gln Thr Ser Pro Ala

Gln Phe Glu Asn Pro Ile Ile Lys Ser Cys Pro Glu Cys Arg Val Ile
305 310 315 320

Ser Glu Phe Val Ile Pro Ser Val Tyr Trp Val Glu Asp Gln Asn Lys
325 330 335

Lys Asn Glu Leu Ile Glu Ala Phe Lys Gln Gly Met Gly Lys Lys Ala
340 345 350

Cys Lys Tyr Phe Glu Gln Gly Lys Gly Thr Cys Pro Phe Gly Ser Lys
355 360 365

Cys Leu Tyr Arg His Ala Tyr Pro Asp Gly Arg Leu Ala Glu Pro Glu
370 375 380

Lys Pro Arg Lys Gln Leu Ser Ser Gln Gly Thr Val Arg Phe Phe Asn
385 390 395 400

Ser Val Arg Leu Trp Asp Phe Ile Glu Asn Arg Glu Ser Arg His Val
405 410 415

Pro Asn Asn Glu Asp Val Asp Met Thr Glu Leu Gly Asp Leu Phe Met
420 425 430

His Leu Ser Gly Val Glu Ser Ser Glu Pro
435 440

<210> 1173
<211> 142
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (9)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (63)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (86)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1173
Leu Glu Phe Trp Leu Leu Cys Leu Xaa Ser Arg His Leu Leu Tyr Gln

Thr Cys Arg Tyr Phe Met His Gly Val Cys Arg Glu Gly Ser Gln Cys
35 40 45

Leu Phe Ser His Asp Leu Ala Asn Ser Lys Pro Ser Thr Ile Cys Lys
50 55 60

Tyr Tyr Gln Lys Gly Tyr Cys Ala Tyr Gly Thr Arg Cys Arg Tyr Asp
65 70 75 80

His Thr Arg Pro Ser Ala Ala Ala Gly Gly Ala Val Gly Thr Met Ala
85 90 95

His Ser Val Pro Ser Pro Ala Phe His Ser Pro His Pro Pro Ser Glu
100 105 110

Val Thr Ala Ser Ile Val Lys Thr Asn Ser His Glu Pro Gly Lys Arg
115 120 125

Glu Lys Arg Thr Leu Val Leu Arg Asp Arg Asn Leu Ser Gly Met Ala
130 135 140

Glu Arg Lys Thr Gln Pro Ser Met Val Ser Asn Pro Gly Ser Cys Ser
145 150 155 160

Asp Pro Gln Pro Ser Pro Glu Met Lys Pro His Ser Tyr Leu Asp Ala
165 170 175

Ile Arg Ser Gly Leu Asp Asp Val Glu Ala Ser Ser Ser Tyr Ser Asn
180 185 190

Glu Gln Gln Leu Cys Pro Tyr Ala Ala Ala Gly Glu Cys Arg Phe Gly
195 200 205

Asp Ala Cys Phe Tyr Leu His Gly Glu Val Cys Glu Ile Cys Arg Leu
210 215 220

Gln Val Leu His Pro Phe Asp Pro Glu Gln Arg Lys Ala His Glu Lys
225 230 235 240

Ile Cys Met Leu Thr Phe Glu His Glu Met Glu Lys Ala Phe Ala Phe
245 250 255

Gln Ala Ser Gln Asp Lys Val Cys Ser Ile Cys Met Glu Val Ile Leu
260 265 270

Glu Lys Ala Ser Ala Ser Glu Arg Arg Phe Gly Ile Leu Ser Asn Cys
275 280 285

Asn His Thr Tyr Cys Leu Ser Cys Ile Arg Gln Trp Arg Cys Ala Lys
290 295 300

405 410 415

Asp Trp Ser Leu Lys Ser Glu His Trp His Gln Lys Glu Leu Ser Gly
420 425 430

Lys Thr Gln Asn Ser Phe Lys Thr Gly Val Val Glu Met Lys Asp Ser
435 440 445

Gly Tyr Lys Val Ser Asp Pro Glu Asn Leu Tyr Leu Lys Gln Gly Ile
450 455 460

Ala Asn Leu Ser Ala Glu Val Val Ser Leu Lys Arg Leu Ile Ala Thr
465 470 475 480

Gln Pro Ile Ser Ala Ser Asp Ser Gly
485

<210> 1171
<211> 49
<212> PRT
<213> Homo sapiens

<400> 1171
Gly Gly Val Thr Lys Arg Gln Ile Leu His Met Ile Pro Leu Val Ile
1 5 10 15

Pro Arg Val Lys Phe Met Glu Thr Glu Ser Arg Lys Val Val Thr Ser
20 25 30

Gly Trp Glu Gly Glu Asn Val Glu Phe Asn Gly Tyr Arg Ile Leu Val
35 40 45

Leu

<210> 1172
<211> 442
<212> PRT
<213> Homo sapiens

<400> 1172
Ala Glu Ala Arg Ala Lys Ala Glu Ala Ala Gly Leu Arg Glu Ala Ala
1 5 10 15

Ala Arg Arg Arg Ser Leu Ser Pro Ala Thr Met Ser Thr Lys Gln Ile
20 25 30

130 135 140

Glu Leu Leu Ser Leu Lys Leu Lys Phe Gly Leu Ile Ser Ser Thr Ala
145 150 155 160

Tyr Ala Gln Glu Ile Gln Lys Leu Ser Asn Ser Thr Ala Val Tyr Phe
165 170 175

Gln Asp Tyr Gln Thr Ser Lys Ser Asn Val Ser Ser Phe Val Asp Glu
180 185 190

His Glu Pro Ser Met Val Ser Ser Ser Cys Ile Ser Val Ile Lys His
195 200 205

Ser Pro Gln Ser Ser Leu Ser Asp Val Ser Glu Val Ser Ser Val Glu
210 215 220

His Thr Gln Glu Ser Ser Val Gln Gly Ser Cys Arg Ser Pro Glu Asn
225 230 235 240

Lys Phe Gln Ile Ile Lys Gln Glu Pro Met Glu Leu Glu Ser Tyr Thr
245 250 255

Arg Glu Pro Arg Asp Asp Arg Gly Ser Tyr Thr Ala Ser Ile Tyr Gln
260 265 270

Asn Tyr Met Gly Asn Ser Phe Ser Gly Tyr Ser His Ser Pro Pro Leu
275 280 285

Leu Gln Val Asn Arg Ser Ser Ser Asn Ser Pro Arg Thr Ser Glu Thr
290 295 300

Asp Asp Gly Val Val Gly Lys Ser Ser Asp Gly Glu Asp Glu Gln Gln
305 310 315 320

Val Pro Lys Gly Pro Ile His Ser Pro Val Glu Leu Lys His Val His
325 330 335

Ala Thr Val Val Lys Val Pro Glu Val Asn Ser Ser Xaa Leu Xaa His
340 345 350

Lys Leu Arg Xaa Lys Ala Lys Ala Met Xaa Ile Lys Val Glu Ala Phe
355 360 365

Asp Asn Glu Phe Glu Ala Thr Gln Lys Leu Ser Ser Pro Ile Asp Met
370 375 380

Thr Ser Lys Arg His Phe Glu Leu Glu Lys His Ser Ala Pro Ser Met
385 390 395 400

Val His Ser Ser Leu Thr Pro Phe Ser Val Gln Val Thr Asn Ile Gln

<210> 1170
<211> 489
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (349)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (351)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (356)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (362)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1170
Thr Arg Val Phe Lys Glu Leu Glu Asn Thr Gly Lys Leu Ile Cys Ser
1 5 10 15

Pro Thr His Ile Asp Arg Val Arg Leu Phe Leu Met Gln Leu Arg Lys
20 25 30

Met Gln Thr Val Lys Lys Glu Gln Ala Ser Leu Asp Ala Ser Ser Asn
35 40 45

Val Asp Lys Met Met Val Leu Asn Ser Ala Leu Thr Glu Val Ser Glu
50 55 60

Asp Ser Thr Thr Gly Glu Glu Leu Leu Leu Ser Glu Gly Ser Val Gly
65 70 75 80

Lys Asn Lys Ser Ser Ala Cys Arg Arg Lys Arg Glu Phe Ile Pro Asp
85 90 95

Glu Lys Lys Asp Ala Met Tyr Trp Glu Lys Arg Arg Lys Asn Asn Glu
100 105 110

Ala Ala Lys Arg Ser Arg Glu Lys Arg Arg Leu Asn Asp Leu Val Leu
115 120 125

Glu Asn Lys Leu Ile Ala Leu Gly Glu Glu Asn Ala Thr Leu Lys Ala

Ser Gly Ser Gln Ala Pro Gln Leu Ser Pro Ala Leu Leu Arg Ala Leu
35 40 45

Gly Gln Lys Cys Pro Asn Leu Lys Arg Leu Cys Leu His Val Ala Asp
50 55 60

Leu Ser Met Val Pro Ile Thr Ser Leu Pro Ser Thr Leu Arg Thr Leu
65 70 75 80

Glu Leu His Ser Cys Glu Ile Ser Met Ala Trp Leu His Lys Gln Gln
85 90 95

Asp Pro Thr Val Leu Pro Leu Leu Glu Cys Ile Val Leu Asp Arg Val
100 105 110

Pro Ala Phe Arg Asp Glu His Leu Gln Gly Leu Thr Arg Phe Arg Ala
115 120 125

Leu Arg Ser Leu Val Leu Gly Gly Thr Tyr Arg Val Thr Glu Thr Gly
130 135 140

Leu Asp Ala Gly Leu Gln Glu Leu Ser Tyr Leu Gln Arg Leu Glu Val
145 150 155 160

Leu Gly Cys Thr Leu Ser Ala Asp Ser Thr Leu Leu Ala Ile Ser Arg
165 170 175

His Leu Pro Arg Cys Ala Gln Asp Pro Ala Asp Arg Glu Gly Leu Ser
180 185 190

Ala Pro Gly Leu Ala Val Leu Glu Gly Met Pro Ala Leu Glu Ser Leu
195 200 205

Cys Leu Gln Gly Pro Leu Val Thr Pro Glu Met Pro Ser Pro Thr Glu
210 215 220

Ile Leu Ser Ser Cys Leu Thr Met Pro Lys Leu Arg Val Leu Glu Leu
225 230 235 240

Gln Gly Leu Gly Trp Glu Gly Gln Glu Ala Glu Lys Ile Leu Cys Lys
245 250 255

Gly Leu Pro His Cys Met Val Ile Val Arg Ala Cys Pro Lys Glu Ser
260 265 270

Met Asp Trp Trp Met
275

Arg Leu Asp Cys Gln Ser Ala Met Phe Asn Asp Tyr Asn Phe Val Phe
325 330 335

Thr Ser Phe Ala Lys Lys Gln Gln Gln Gln Gln Ser
340 345

<210> 1168
<211> 90
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (19)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1168
Ser Ser Gln Arg Leu Gln Gly Arg Ala Arg Ala Val Leu Ser Pro Pro
1 5 10 15

Ala Pro Xaa Ser Asn Val Gly Thr Gly Glu Lys Lys Val Thr Glu Ala
20 25 30

Trp Ile Ser Glu Asp Glu Asn Ser His Arg Thr Thr Ser Asp Arg Leu
35 40 45

Thr Val Met Glu Leu Pro Ser Pro Glu Ser Glu Glu Val His Glu Pro
50 55 60

Arg Leu Gly Glu Leu Leu Gly Asn Pro Glu Gly Gln Ser Leu Gly Ser
65 70 75 80

Ser Pro Ser Gln Asp Arg Gly Cys Asn Arg
85 90

<210> 1169
<211> 277
<212> PRT
<213> Homo sapiens

<400> 1169
Arg Ser Thr Arg Trp Arg Pro Lys Val Met Trp His Leu Leu Arg Arg
1 5 10 15

Tyr Met Ala Ser Arg Leu His Ser Leu Arg Met Gly Gly Tyr Leu Phe
20 25 30

Ile Pro Arg Ser Glu Trp Asp Ile Leu Leu Lys Asp Val Gln Cys Ser
50 55 60

Ile Ile Ser Val Thr Lys Thr Asp Lys Gln Glu Ala Tyr Val Leu Ser
65 70 75 80

Glu Ser Ser Met Phe Val Ser Lys Arg Arg Phe Ile Leu Lys Thr Cys
85 90 95

Gly Thr Thr Leu Leu Leu Lys Ala Leu Val Pro Leu Leu Lys Leu Ala
100 105 110

Arg Asp Tyr Ser Gly Phe Asp Ser Ile Gln Ser Phe Phe Tyr Ser Arg
115 120 125

Lys Asn Phe Met Lys Pro Ser His Gln Gly Tyr Pro His Arg Asn Phe
130 135 140

Gln Glu Glu Ile Glu Phe Leu Asn Ala Ile Phe Pro Asn Gly Ala Ala
145 150 155 160

Tyr Cys Met Gly Arg Met Asn Ser Asp Cys Trp Tyr Leu Tyr Thr Leu
165 170 175

Asp Phe Pro Glu Ser Arg Val Ile Ser Gln Pro Asp Gln Thr Leu Glu
180 185 190

Ile Leu Met Ser Glu Leu Asp Pro Ala Val Met Asp Gln Phe Tyr Met
195 200 205

Lys Asp Gly Val Thr Ala Lys Asp Val Thr Arg Glu Ser Gly Ile Arg
210 215 220

Asp Leu Ile Pro Gly Ser Val Ile Asp Ala Thr Met Phe Asn Pro Cys
225 230 235 240

Gly Tyr Ser Met Asn Gly Met Lys Ser Asp Gly Thr Tyr Trp Thr Ile
245 250 255

His Ile Thr Pro Glu Pro Glu Phe Ser Tyr Val Ser Phe Glu Thr Asn
260 265 270

Leu Ser Gln Thr Ser Tyr Asp Asp Leu Ile Arg Lys Val Val Glu Val
275 280 285

Phe Lys Pro Gly Lys Phe Val Thr Thr Leu Phe Val Asn Gln Ser Ser
290 295 300

Lys Cys Arg Thr Val Leu Ala Ser Pro Gln Lys Ile Glu Gly Phe Lys
305 310 315 320

Pro Gly Leu Cys Asn Cys
145 150

<210> 1166
<211> 84
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (38)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1166
Ala Ile Trp Pro Leu Arg Gly Leu Leu Arg Tyr Arg Gln Phe Cys Gly
1 5 10 15

Ala Ala Ser Ala Ala Pro Arg Arg Ser Asn Met Leu Arg Ile Pro Leu
20 25 30

Arg Arg Ala Leu Val Xaa Leu Ser Asn Lys Ser Ser Lys Gly Cys Val
35 40 45

Arg Thr Thr Ala Thr Ala Ala Ser Asn Leu Ile Glu Val Phe Val Asp
50 55 60

Gly Gln Ser Val Met Val Glu Pro Gly Thr Thr Val Leu Gln Ala Cys
65 70 75 80

Glu Lys Val Gly

<210> 1167
<211> 348
<212> PRT
<213> Homo sapiens

<400> 1167
Leu Ile Phe Cys Gly Cys Trp Leu Phe Ala Ser Leu Thr Val Met Glu
1 5 10 15

Ala Ala His Phe Phe Glu Gly Thr Glu Lys Leu Leu Glu Val Trp Phe
20 25 30

Ser Arg Gln Gln Pro Asp Ala Asn Gln Gly Ser Gly Asp Leu Arg Thr
35 40 45

Thr Lys Lys Pro Lys Ala Thr Pro Val Lys Lys Ala Lys Lys Lys Leu
245 250 255

Ala Ala Thr Pro Lys Lys Ala Lys Lys Pro Lys Thr Val Lys Ala Lys
260 265 270

Pro Val Lys Ala Ser Lys Pro Lys Lys Ala Lys Pro Val Lys Pro Lys
275 280 285

Ala Lys Ser Ser Ala Lys Arg Ala Gly Lys Lys Lys
290 295 300

<210> 1165
<211> 150
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (115)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1165
Ser Thr His Ala Ser Ala His Ala Ser Gly Lys Gln Glu Ile Val Asp
1 5 10 15

Pro Pro Ser Lys Met Glu Asp Gly Lys Pro Val Trp Ala Pro His Pro
20 25 30

Thr Asp Gly Phe Gln Met Gly Asn Ile Val Asp Ile Gly Pro Asp Ser
35 40 45

Leu Thr Ile Glu Pro Leu Asn Gln Lys Gly Lys Thr Phe Leu Ala Leu
50 55 60

Ile Asn Gln Val Phe Pro Ala Glu Glu Asp Ser Lys Lys Asp Val Glu
65 70 75 80

Asp Asn Cys Ser Leu Met Tyr Leu Asn Glu Ala Thr Leu Leu His Asn
85 90 95

Ile Lys Val Arg Tyr Ser Lys Asp Arg Ile Tyr Thr Tyr Val Ala Asn
100 105 110

Ile Leu Xaa Ala Val Asn Pro Tyr Phe Asp Ile Pro Lys Ile Tyr Leu
115 120 125

Gln Ser Ile Lys Ser Tyr Gln Gly Lys Ser Leu Gly Thr Arg Pro Pro
130 135 140

<210> 1164
<211> 300
<212> PRT
<213> Homo sapiens

<400> 1164
Arg Arg Pro Ser Ala Arg Arg Glu Leu Gly Lys Gly Arg Gln Arg Arg
1   5   10   15

Arg Arg Gln Arg Gln Arg Gln Ser Pro Val Pro Arg Pro Ser Asp Arg
            20   25   30

Pro Ala Gly Leu Gly Leu Ala Lys Pro Ala Arg Arg Ala Leu Pro Thr
        35   40   45

Pro Glu Pro Gly Arg Lys Ser Ser Asp Ser Ser Leu Ala Ser Pro Gly
    50   55   60

Ala Ala Leu Gln Thr Gly Pro Val Val Arg Gly Ser Gly Ala Asp Pro
65   70   75   80

Glu Ala Gly Phe Ala Gln Pro Pro Thr Arg Ala Gly Pro Leu Glu Gly
                85   90   95

Ala Phe Asn Ser Arg Thr Arg Gln Ala Thr Met Thr Glu Asn Ser Thr
            100   105   110

Ser Ala Pro Ala Ala Lys Pro Lys Arg Ala Lys Ala Ser Lys Lys Ser
        115   120   125

Thr Asp His Pro Lys Tyr Ser Asp Met Ile Val Ala Ala Ile Gln Ala
    130   135   140

Glu Lys Asn Arg Ala Gly Ser Ser Arg Gln Ser Ile Gln Lys Tyr Ile
145   150   155   160

Lys Ser His Tyr Lys Val Gly Glu Asn Ala Asp Ser Gln Ile Lys Leu
                165   170   175

Ser Ile Lys Arg Leu Val Thr Thr Gly Val Leu Lys Gln Thr Lys Gly
            180   185   190

Val Gly Ala Ser Gly Ser Phe Arg Leu Ala Lys Ser Asp Glu Pro Lys
        195   200   205

Lys Ser Val Ala Phe Lys Lys Thr Lys Lys Glu Ile Lys Lys Val Ala
    210   215   220

Thr Pro Lys Lys Ala Ser Lys Pro Lys Lys Ala Ala Ser Lys Ala Pro
225   230   235   240

<211> 195
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (186)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1163
```
Phe Leu Asn Arg Glu Leu Ile Val Lys Ser Ser Met Ala Thr Gly Gly
1               5                   10                  15

Gly Pro Phe Glu Asp Gly Met Asn Asp Gln Asp Leu Pro Asn Trp Ser
            20                  25                  30

Asn Glu Asn Val Asp Asp Arg Leu Asn Asn Met Asp Trp Gly Ala Gln
        35                  40                  45

Gln Lys Lys Ala Asn Arg Ser Ser Glu Lys Asn Lys Lys Lys Phe Gly
    50                  55                  60

Val Glu Ser Asp Lys Arg Val Thr Asn Asp Ile Ser Pro Glu Ser Ser
65                  70                  75                  80

Pro Gly Val Gly Arg Arg Arg Thr Lys Thr Pro His Thr Phe Pro His
                85                  90                  95

Ser Arg Tyr Met Ser Gln Met Ser Val Pro Glu Gln Ala Glu Leu Glu
            100                 105                 110

Lys Leu Lys Gln Arg Ile Asn Phe Ser Asp Leu Asp Gln Arg Ser Ile
        115                 120                 125

Gly Ser Asp Ser Gln Gly Arg Ala Thr Ala Ala Asn Asn Lys Arg Gln
    130                 135                 140

Leu Ser Glu Asn Arg Lys Pro Phe Asn Phe Leu Pro Met Gln Ile Asn
145                 150                 155                 160

Thr Asn Lys Glu Gln Arg Cys Ile Leu Gln Val Pro Gln Thr Glu Glu
                165                 170                 175

Thr Val Gly Phe Ser Thr Val Leu Lys Xaa Cys Phe Ala Phe Trp Phe
            180                 185                 190

Leu Ser Asn
        195
```

<221> SITE
<222> (148)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (153)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (165)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1162
```
Cys Arg Lys Thr Ala Gln Pro Thr Ala Ala Glu Met Lys Tyr Lys Asn
  1               5                  10                  15

Leu Met Ala Arg Ala Leu Tyr Asp Asn Val Pro Glu Cys Ala Glu Glu
             20                  25                  30

Leu Ala Phe Arg Lys Gly Asp Ile Leu Thr Val Ile Glu Gln Asn Thr
         35                  40                  45

Gly Gly Leu Glu Gly Trp Trp Leu Cys Ser Leu His Gly Arg Gln Gly
     50                  55                  60

Ile Val Pro Gly Asn Arg Val Lys Leu Leu Ile Gly Pro Met Gln Glu
 65                  70                  75                  80

Thr Ala Ser Ser His Glu Gln Pro Ala Ser Gly Leu Met Gln Gln Thr
                 85                  90                  95

Phe Gly Gln Gln Lys Leu Tyr Gln Val Pro Asn Pro Thr Gly Leu Leu
            100                 105                 110

Pro Pro Arg His Pro Phe Leu Pro Lys Val Pro Thr Leu Ser Leu Thr
        115                 120                 125

Gln Lys Ile Lys Gly Glu Ile Phe Thr Gln Arg Phe Pro Gln Leu Xaa
    130                 135                 140

Ala Gln Arg Xaa Thr Pro Lys Gly Xaa Lys Gly Gly Val Leu Phe Arg
145                 150                 155                 160

Val Ala Pro Pro Xaa
                165
```

<210> 1163

130 135 140

Ile Lys Lys Gln Leu Arg Glu Trp Asp Glu Asn Leu Lys Asp Asp Ser
145 150 155 160

Leu Pro Ser Asn Pro Ile Asp Phe Ser Tyr Arg Val Ala Ala Cys Leu
165 170 175

Pro Ile Asp Asp Val Leu Arg Ile Gln Leu Leu Lys Ile Gly Ser Ala
180 185 190

Ile Gln Arg Leu Arg Cys Glu Leu Asp Ile Met Asn Lys Cys Thr Ser
195 200 205

Leu Cys Cys Lys Gln Cys Gln Glu Thr Glu Ile Thr Thr Lys Asn Glu
210 215 220

Ile Phe Ser Leu Ser Leu Cys Gly Pro Met Ala Ala Tyr Val Asn Pro
225 230 235 240

His Gly Tyr Val His Glu Thr Leu Thr Val Tyr Lys Ala Cys Asn Leu
245 250 255

Asn Leu Ile Gly Arg Pro Ser Thr Glu His Ser Trp Phe Pro Gly Tyr
260 265 270

Ala Trp Thr Val Ala Gln Cys Lys Ile Cys Ala Ser His Ile Gly Trp
275 280 285

Lys Phe Thr Ala Thr Lys Lys Asp Met Ser Pro Gln Lys Phe Trp Gly
290 295 300

Leu Thr Arg Ser Ala Leu Leu Pro Thr Ile Pro Asp Thr Glu Asp Glu
305 310 315 320

Ile Ser Pro Asp Lys Val Ile Leu Cys Leu
325 330

<210> 1162
<211> 165
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (144)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

Ile Leu Ser Gln Tyr Ile Thr Phe Val Lys Pro Ala Phe Glu Glu Phe
260 265 270

Cys Leu Pro Thr Lys Lys Tyr Ala Asp Val Ile Ile Pro Arg Gly Ala
275 280 285

Asp Asn Leu Val Ala Ile Asn Leu Ile Val Gln His Ile Gln Asp Ile
290 295 300

Leu Asn Gly Gly Pro Ser Lys Arg Gln Thr Asn Gly Cys Leu Asn Gly
305 310 315 320

Tyr Thr Pro Ser Arg Lys Arg Gln Ala Ser Glu Ser Ser Ser Arg Pro
325 330 335

His

<210> 1161
<211> 330
<212> PRT
<213> Homo sapiens

<400> 1161
Ala Arg Gly Met Phe Gly Leu Gly Asn Glu Phe Lys Pro Leu Asn Val
1 5 10 15

Gln Glu Arg Glu Ala Gln Phe Gly Thr Thr Ala Glu Ile Tyr Ala Tyr
20 25 30

Arg Glu Glu Gln Asp Phe Gly Ile Glu Ile Val Lys Val Lys Ala Ile
35 40 45

Gly Arg Gln Arg Phe Lys Val Leu Glu Leu Arg Thr Gln Ser Asp Gly
50 55 60

Ile Gln Gln Ala Lys Val Gln Ile Leu Pro Glu Cys Val Leu Pro Ser
65 70 75 80

Thr Met Ser Ala Val Gln Leu Glu Ser Leu Asn Lys Cys Gln Ile Phe
85 90 95

Pro Ser Lys Pro Val Ser Arg Glu Asp Gln Cys Ser Tyr Lys Trp Trp
100 105 110

Gln Lys Tyr Gln Lys Arg Lys Phe His Cys Ala Asn Leu Thr Ser Trp
115 120 125

Pro Arg Trp Leu Tyr Ser Leu Tyr Asp Ala Glu Thr Leu Met Asp Arg

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1160

Cys Leu Gly Cys Lys Pro Asp Gln Pro Leu Arg Ala Glu Gly Arg Leu
1 5 10 15

Leu Ala Pro Ser Gly Asn Pro Ala Pro Ser Pro Gly Ser Glu Arg Leu
20 25 30

Ala Gly Asp Asp Thr Xaa Ser Ala Pro Ala Ala Pro Ser Xaa Gly Cys
35 40 45

Gly Lys Arg Arg Glu Ser Asp Ala Gly Ala Gly Gly Glu Arg Ala Ser
50 55 60

Val Arg Thr Gly Ser Gly Arg Arg Gly Gly Ala Asn His Gly Arg Gly
65 70 75 80

Gln Arg Ala Asp Pro Ala Glu Pro Pro Ala Ala Gln Arg Arg Arg Ala
85 90 95

Leu Pro Tyr Arg Arg His Gly Gly Thr Ala Ser Gly Lys Ser Ser Val
100 105 110

Cys Ala Lys Ile Val Gln Leu Leu Gly Gln Asn Glu Val Asp Tyr Arg
115 120 125

Gln Lys Gln Val Val Ile Leu Ser Gln Asp Ser Phe Tyr Arg Val Leu
130 135 140

Thr Ser Glu Gln Lys Ala Lys Ala Leu Lys Xaa Gln Phe Asn Phe Asp
145 150 155 160

His Pro Asp Ala Phe Asp Asn Glu Xaa Ile Leu Lys Thr Leu Lys Glu
165 170 175

Ile Thr Glu Gly Lys Thr Val Gln Ile Pro Val Tyr Asp Phe Val Ser
180 185 190

His Ser Arg Lys Glu Glu Thr Val Thr Val Tyr Pro Ala Asp Val Val
195 200 205

Leu Phe Glu Gly Ile Leu Ala Phe Tyr Ser Gln Glu Val Arg Asp Leu
210 215 220

Phe Gln Met Lys Leu Phe Val Asp Thr Asp Ala Asp Thr Arg Leu Ser
225 230 235 240

Arg Arg Val Leu Arg Asp Ile Ser Glu Arg Gly Arg Asp Leu Glu Gln
245 250 255

```
            20                  25                  30

His Ser Ser Pro Glu Asp Gly Gly Gly Gly Xaa Asp Arg Xaa Gly Gly
        35                  40                  45

Thr Gly Gly Pro Arg Leu Val Ile Gly Ser Leu Pro Ala His Leu Ser
    50                  55                  60

Pro His Met Phe Gly Gly Phe Lys Cys Pro Val Cys Ser Lys Phe Val
65                  70                  75                  80

Ser Ser Asp Glu Met Asp Leu His Leu Val Met Cys Leu Thr Lys Pro
                85                  90                  95

Arg Ile Thr Tyr Asn Glu Asp Val Leu Ser Lys Asp Ala Gly Glu Cys
            100                 105                 110

Ala Ile Cys Leu Glu Glu Leu Gln Gln Gly Asp Thr Ile Ala Arg Leu
        115                 120                 125

Pro Cys Leu Cys Ile Tyr His Lys Gly Cys Ile Asp Glu Trp Phe Glu
    130                 135                 140

Val Asn Arg Ser Cys Pro Glu His Pro Ser Asp
145                 150                 155


<210> 1160
<211> 337
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (38)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (46)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (155)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (169)
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<211> 114
<212> PRT
<213> Homo sapiens

<400> 1158
Leu Ser Pro Gln Trp Thr His Leu Leu Val Lys Gly Ala Val Val Leu
1 5 10 15

Cys Gly Ser Gln Phe Thr Ser Phe Pro Lys Ile Gln Cys Asp His Pro
20 25 30

Val Asn Gly His Thr Ser Ser Glu Ile Asn Phe Gln Asn Leu Cys Ser
35 40 45

Ser Ser Tyr Pro Leu Arg Val Ile Met Ala Asn Lys Gln Lys Ala Leu
50 55 60

Val Gln Ala Pro Pro Asn Thr Leu Asn Leu Asn Leu Asn Met Leu Lys
65 70 75 80

Phe Glu Asn Lys Glu Thr Phe Phe Ile Ser Leu Ser Gly Leu Ser Leu
85 90 95

Val Leu Met Gly Leu Leu Met Ala Phe Gln Ser Val Ala Glu Ala Ile
100 105 110

Ile Phe

<210> 1159
<211> 155
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (43)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (46)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1159
Pro Trp Gly Ala Trp Arg Gln Gly Ala Arg Ala Ala Gln Ser Pro Phe
1 5 10 15

Ser Ile Pro Asn Ser Ser Ser Val Pro Tyr Gly Ser Gln Asp Ser Val

Arg Leu Lys Leu Ile Ala Asn Asn Thr Thr Val Glu Arg Arg Phe Ser
420 425 430

Ser Trp Ile Gly Gly Ser Ile Leu Ala Ser Leu Gly Thr Phe Gln Gln
435 440 445

Met Trp Ile Ser Lys Gln Glu Tyr Glu Glu Gly Gly Lys Gln Cys Val
450 455 460

Glu Arg Lys Cys Pro
465

<210> 1157
<211> 94
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (19)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (49)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1157
Thr Ala Leu Cys Pro Arg Ile His Glu Val Pro Leu Leu Glu Pro Leu
1 5 10 15

Val Cys Xaa Lys Ile Ala Gln Glu Arg Leu Thr Val Leu Leu Phe Leu
20 25 30

Glu Asp Cys Ile Ile Thr Ala Cys Gln Glu Gly Leu Ile Cys Thr Trp
35 40 45

Xaa Arg Pro Gly Lys Ala Phe Thr Asp Glu Glu Thr Glu Ala Gln Thr
50 55 60

Gly Glu Gly Ser Trp Pro Arg Ser Pro Ser Lys Ser Val Val Glu Gly
65 70 75 80

Ile Ser Ser Gln Pro Gly Asn Ser Pro Ser Gly Thr Val Val
85 90

<210> 1158

His Thr Tyr Lys Met His Val Lys Ser Glu Ala Ser Leu His Pro Val
145 150 155 160

Leu Met Ser Glu Ala Pro Trp Asn Thr Arg Ala Lys Arg Glu Lys Leu
165 170 175

Thr Glu Leu Met Phe Glu His Tyr Asn Ile Pro Ala Phe Phe Leu Cys
180 185 190

Lys Thr Ala Val Leu Thr Ala Phe Ala Asn Gly Arg Ser Thr Gly Leu
195 200 205

Ile Leu Asp Ser Gly Ala Thr His Thr Thr Ala Ile Pro Val His Asp
210 215 220

Gly Tyr Val Leu Gln Gln Gly Ile Val Lys Ser Pro Leu Ala Gly Asp
225 230 235 240

Phe Ile Thr Met Gln Cys Arg Glu Leu Phe Gln Glu Met Asn Ile Glu
245 250 255

Leu Val Pro Pro Tyr Met Ile Ala Ser Lys Glu Ala Val Arg Glu Gly
260 265 270

Ser Pro Ala Asn Trp Lys Arg Lys Glu Lys Leu Pro Gln Val Thr Arg
275 280 285

Ser Trp His Asn Tyr Met Cys Asn Cys Val Ile Gln Asp Phe Gln Ala
290 295 300

Ser Val Leu Gln Val Ser Asp Ser Thr Tyr Asp Glu Gln Val Ala Ala
305 310 315 320

Gln Met Pro Thr Val His Tyr Glu Phe Pro Asn Gly Tyr Asn Cys Asp
325 330 335

Phe Gly Ala Glu Arg Leu Lys Ile Pro Glu Gly Leu Phe Asp Pro Ser
340 345 350

Asn Val Lys Gly Leu Ser Gly Asn Thr Met Leu Gly Val Ser His Val
355 360 365

Val Thr Thr Ser Val Gly Met Cys Asp Ile Asp Ile Arg Pro Gly Leu
370 375 380

Tyr Gly Ser Val Ile Val Ala Gly Gly Asn Thr Leu Ile Gln Ser Phe
385 390 395 400

Thr Asp Arg Leu Asn Arg Glu Leu Ser Gln Lys Thr Pro Pro Ser Met
405 410 415

Phe Ile Glu Lys Leu Pro His Ser Pro Cys Leu Leu Phe Ser Ala Met
50 55 60

Pro Gln Gly Ser Glu Leu Ser Thr Thr Asp Ser Cys Gly Phe Ser Glu
65 70 75 80

Ala Ala His Cys Gln Gly Gln Ala Glu Arg Gly Pro Ala Cys Cys Gly
85 90 95

Gly Cys Leu Ala Gln Met Ser Ile Tyr Leu Pro Pro Ser His Leu Ala
100 105 110

Ser Cys Pro Leu Asp Met Cys Cys
115 120

<210> 1156
<211> 469
<212> PRT
<213> Homo sapiens

<400> 1156
Gly Gly Trp Arg Trp Lys Leu Arg Glu Ser Gly Ala Ile Ala Pro Arg
1 5 10 15

Asp Ser Gln Ser Arg Pro Leu Gln Ser Leu Arg Gln Leu Ala Leu Arg
20 25 30

Val Gly Val Ala Pro Ala Ala Ala Met Ser Gly Gly Val Tyr Gly Gly
35 40 45

Asp Glu Val Gly Ala Leu Val Phe Asp Ile Gly Ser Tyr Thr Val Arg
50 55 60

Ala Gly Tyr Ala Gly Glu Asp Cys Pro Lys Val Asp Phe Pro Thr Ala
65 70 75 80

Ile Gly Met Val Val Glu Arg Asp Asp Gly Ser Thr Leu Met Glu Ile
85 90 95

Asp Gly Asp Lys Gly Lys Gln Gly Gly Pro Thr Tyr Tyr Ile Asp Thr
100 105 110

Asn Ala Leu Arg Val Pro Arg Glu Asn Met Glu Ala Ile Ser Pro Leu
115 120 125

Lys Asn Gly Met Val Glu Asp Trp Asp Ser Phe Gln Ala Ile Leu Asp
130 135 140

165 170 175

Ile Met Gly Gly Cys Gln Leu Asn Phe Thr Val Gly Val Asp Phe Thr
180 185 190

Gly Ser Asn Gly Asp Pro Arg Ser Pro Asp Ser Leu His Tyr Ile Ser
195 200 205

Pro Asn Gly Val Asn Glu Tyr Leu Thr Ala Leu Trp Ser Val Gly Leu
210 215 220

Val Ile Gln Asp Tyr Asp Ala Asp Lys Met Phe Pro Ala Phe Gly Phe
225 230 235 240

Gly Ala Gln Ile Pro Pro Gln Trp Gln Val Ser His Glu Phe Pro Met
245 250 255

Asn Phe Asn Pro Ser Asn Pro Tyr Cys Asn Gly Ile Gln Gly Ile Val
260 265 270

Glu Ala Tyr Arg Ser Cys Leu Pro Gln Ile Lys Leu Tyr Gly Pro Thr
275 280 285

Asn Phe Ser Pro Ile Ile Asn His Val Ala Arg Phe Ala Ala Ala Ala
290 295 300

Thr Gln Gln Gln Thr Ala Ser Gln Tyr Xaa Val Leu Leu Ile Ile Thr
305 310 315 320

Asp Gly Val Ile Thr Asp Leu Asp Glu Thr Arg Gln Ala Ile Val Asn
325 330 335

Ala Ser Ser Cys Leu Cys Pro Ser
340

<210> 1155
<211> 120
<212> PRT
<213> Homo sapiens

<400> 1155
Tyr Phe Ile Glu Gly Leu Cys Ala Lys Asn Tyr Ala Tyr Leu Tyr Ile
1 5 10 15

Gly Gln Leu Ser Leu Ile Ile Tyr Leu Leu Lys Leu His Val Tyr His
20 25 30

Ile Ser Leu Ser Gly His Ile Gln Cys His Val Asp Val Pro Leu Ser
35 40 45

<221> SITE
<222> (88)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (96)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (140)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (314)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1154
Ser Lys Lys Leu Thr Arg Pro Leu Val Met Lys Thr Gly Arg Pro Ala
1 5 10 15

Gly Lys Gly Ser Ile Thr Ile Ser Ala Glu Glu Ile Lys Asp Asn Arg
20 25 30

Val Val Leu Phe Glu Met Glu Ala Arg Lys Leu Asp Asn Lys Asp Leu
35 40 45

Phe Gly Lys Ser Asp Pro Tyr Leu Glu Phe His Lys Gln Thr Ser Asp
50 55 60

Gly Asn Trp Leu Met Val His Arg Thr Glu Val Val Lys Asn Asn Leu
65 70 75 80

Asn Pro Val Trp Xaa Pro Phe Xaa Ile Ser Leu Asn Ser Leu Cys Xaa
85 90 95

Gly Asp Met Asp Lys Thr Ile Lys Val Glu Cys Tyr Asp Tyr Asp Asn
100 105 110

Asp Gly Ser His Asp Leu Ile Gly Thr Phe Gln Thr Thr Met Thr Lys
115 120 125

Leu Lys Glu Ala Ser Arg Ser Ser Pro Val Glu Xaa Glu Cys Ile Asn
130 135 140

Glu Lys Lys Arg Gln Lys Lys Lys Ser Tyr Lys Asn Ser Gly Val Ile
145 150 155 160

Ser Val Lys Gln Cys Glu Ile Thr Val Glu Cys Thr Phe Leu Asp Tyr

260 265 270

Met Asp Ser Gln Gln Ala Ser Gly Thr Ile Val Gln Ile Val Ile Asn
275 280 285

Asn Lys His Lys His Gly Gln Val Cys Val Ser Asn Gly Lys Thr Tyr
290 295 300

Ser His Gly Glu Ser Trp His Pro Asn Leu Arg Ala Phe Gly Ile Val
305 310 315 320

Glu Cys Val Leu Cys Thr Cys Asn Val Thr Lys Gln Glu Cys Lys Lys
325 330 335

Ile His Cys Pro Asn Arg Tyr Pro Cys Lys Tyr Pro Gln Lys Ile Asp
340 345 350

Gly Lys Cys Cys Lys Val Cys Pro Glu Glu Leu Pro Gly Gln Ser Phe
355 360 365

Asp Asn Lys Gly Tyr Phe Cys Gly Glu Glu Thr Met Pro Val Tyr Glu
370 375 380

Ser Val Phe Met Glu Asp Gly Glu Thr Thr Arg Lys Ile Ala Leu Glu
385 390 395 400

Thr Glu Arg Pro Pro Gln Val Glu Val His Val Trp Thr Ile Arg Lys
405 410 415

Gly Ile Leu Gln His Phe His Ile Glu Lys Ile Ser Lys Arg Met Phe
420 425 430

Glu Glu Leu Pro His Phe Lys Leu Val Thr Arg Thr Thr Leu Ser Gln
435 440 445

Trp Lys Ile Phe Thr Glu Gly Glu Ala Gln Ile Ser Gln Met Cys Ser
450 455 460

Ser Arg Val Cys Arg Thr Glu Leu Glu Asp Leu Val Lys Val Leu Tyr
465 470 475 480

Leu Glu Arg Ser Glu Lys Gly His Cys
485

<210> 1152
<211> 48
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (42)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1152
Ile Asn Phe Leu Thr Ile Gly Phe Tyr Gly Val Gly His Asn Phe Trp
1 5 10 15

Leu Tyr Phe Lys Asn Phe Phe Leu Gly Gly Gly Val Leu Gly Ser Gly
20 25 30

His Gln Gly Arg Gly Val Ala Trp Gly Xaa Asp Pro Gly Ala Ser Pro
35 40 45

<210> 1153
<211> 48
<212> PRT
<213> Homo sapiens

<400> 1153
Thr Ile Val Arg Asp Gly Ser Asn Asp Val Ile Cys Glu Asn Ser His
1 5 10 15

His Leu Pro Val Arg Gln Asn Leu Leu Lys Pro Pro Glu Ser Asn Leu
20 25 30

Asp Tyr Ile Arg Pro Phe Phe Thr His Lys Lys Ile Leu Tyr Gly Ile
35 40 45

<210> 1154
<211> 344
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (85)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<400> 1151

Arg Pro Arg Thr Arg Ala Pro Arg Gly Ala Arg Ser Ala Cys Thr Arg
1 5 10 15

Gly Xaa Arg Arg Arg Pro Val Pro Ser Leu Lys Val Leu Ser Pro Phe
20 25 30

Ala Val Val Gln Met Arg Lys Lys Trp Lys Met Gly Gly Met Lys Tyr
35 40 45

Ile Phe Ser Leu Leu Phe Phe Leu Leu Leu Glu Gly Gly Lys Thr Glu
50 55 60

Gln Val Lys His Ser Glu Thr Tyr Cys Met Phe Gln Asp Lys Lys Tyr
65 70 75 80

Arg Val Gly Glu Arg Trp His Pro Tyr Leu Glu Pro Tyr Gly Leu Val
85 90 95

Tyr Cys Val Asn Cys Ile Cys Ser Glu Asn Gly Asn Val Leu Cys Ser
100 105 110

Arg Val Arg Cys Pro Asn Val His Cys Leu Ser Pro Val His Ile Pro
115 120 125

His Leu Cys Cys Pro Arg Cys Pro Glu Asp Ser Leu Pro Pro Val Asn
130 135 140

Asn Lys Val Thr Ser Lys Ser Cys Glu Tyr Asn Gly Thr Thr Tyr Gln
145 150 155 160

His Gly Glu Leu Phe Val Ala Glu Gly Leu Phe Gln Asn Arg Gln Pro
165 170 175

Asn Gln Cys Thr Gln Cys Ser Cys Ser Glu Gly Asn Val Tyr Cys Gly
180 185 190

Leu Lys Thr Cys Pro Lys Leu Thr Cys Ala Phe Pro Val Ser Val Pro
195 200 205

Asp Ser Cys Cys Arg Val Cys Arg Gly Asp Gly Glu Leu Ser Trp Glu
210 215 220

His Ser Asp Gly Asp Ile Phe Arg Gln Pro Ala Asn Arg Glu Ala Arg
225 230 235 240

His Ser Tyr His Arg Ser His Tyr Asp Pro Pro Pro Ser Arg Gln Ala
245 250 255

Gly Gly Leu Ser Arg Phe Pro Gly Ala Arg Ser His Arg Gly Ala Leu

50 55 60

Ser Lys Val Leu Gln Arg Ala Arg His Val Tyr Phe Ile Pro Ile
65 70 75

<210> 1150
<211> 138
<212> PRT
<213> Homo sapiens

<400> 1150
His Ser Glu Ile Gln Ser Val Cys Leu Thr Arg Leu Phe Asp Phe Lys
1 5 10 15

Ile Phe Cys Arg Lys Cys Phe Glu Asn Phe Glu Tyr Leu Lys Met Ala
20 25 30

Gly Val Val Leu His Phe Ala Ser Cys Ser Asp Thr Leu Phe Tyr Leu
35 40 45

Tyr Arg Tyr Ser Glu Phe Leu Phe Phe Ser Thr Cys Cys Thr Leu Ser
50 55 60

Lys Ala Lys Arg Lys Leu Ile Leu Gly Ser Arg Lys Ala Glu Ala Phe
65 70 75 80

Gly Glu Met Glu Thr Arg Met Cys Lys Asn Glu Thr Thr Thr Ser Arg
85 90 95

Ile Lys Lys Lys Lys Cys Gln Ser Ser Arg Val Leu Ser Asp Val Gln
100 105 110

Glu Gly Gly Gly Ile Ile Phe Met Glu His Ile Leu Trp Asn Thr Ala
115 120 125

Ile Arg Met Ser Glu Lys Leu Ile Cys Ser
130 135

<210> 1151
<211> 489
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (18)
<223> Xaa equals any of the naturally occurring L-amino acids

Val Val His Cys Thr Gly Tyr Ile Lys Ala Trp Pro Gln Gln Val Phe
20 25 30

Pro Ser Gln Met Met Thr Gln Pro Glu Val Phe Gln Glu Met Leu Ser
35 40 45

Met Leu Gly Asp Gln Ser Asn Ser Tyr Asn Asn Glu Glu Phe Pro Asp
50 55 60

Leu Thr Met Phe Pro Pro Phe Ser Glu
65 70

<210> 1149
<211> 79
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (15)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (17)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (50)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (58)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1149
Val Lys Trp Val Val Ser Phe Asn Ile Gln Asn Asn His Met Xaa Tyr
1 5 10 15

Xaa Leu Pro Leu Ser Phe Pro Phe Val Gln Met Arg Lys Val Arg Leu
20 25 30

Thr Glu Val Asn Trp Pro Arg Val Pro Gln Leu Val Ser Ala Glu Val
35 40 45

Gly Xaa His Asn Gln Ile Cys Ser Ala Xaa Asn Leu Cys Gln Ile Ser

195 200 205

Leu Glu Asp Gln Val Gln Arg Cys Ile Trp Phe Gln Gln Leu Leu Leu
210 215 220

Ser Leu Thr Met Leu Leu Leu Ala Phe Val Thr Ser Phe Phe Tyr Xaa
225 230 235 240

Leu Tyr Ser

<210> 1147
<211> 58
<212> PRT
<213> Homo sapiens

<400> 1147
Ser Val Lys Met Met Tyr Cys Ile Leu Lys Tyr Ser Asn Cys Ala Phe
1 5 10 15

Leu Tyr His Leu Gln Tyr Glu Lys Cys Gln Tyr Leu Val Pro Phe Ser
20 25 30

Gly Thr Ile Arg Phe Leu Leu Thr Leu Phe Ser Pro Leu Thr His Val
35 40 45

Ile Ser His Ser Asn Gln Glu Ser Arg Glu
50 55

<210> 1148
<211> 73
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (1)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (2)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1148
Xaa Xaa Asn Gly Leu Gly Ser Val Lys Asp Gly Glu Pro His Phe Val
1 5 10 15

<210> 1146
<211> 243
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (240)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1146
Lys Glu Thr Leu Glu Thr Ile Ser Asn Glu Glu Gln Thr Pro Leu Leu
1 5 10 15

Lys Lys Ile Asn Pro Thr Glu Ser Thr Ser Lys Ala Glu Glu Asn Glu
20 25 30

Lys Val Asp Ser Lys Val Lys Ala Phe Lys Lys Pro Leu Ser Val Phe
35 40 45

Lys Gly Pro Leu Leu His Ile Ser Pro Ala Glu Glu Leu Tyr Phe Gly
50 55 60

Ser Thr Glu Ser Gly Glu Lys Lys Thr Leu Ile Val Leu Thr Asn Val
65 70 75 80

Thr Lys Asn Ile Val Ala Phe Lys Val Arg Thr Thr Ala Pro Glu Lys
85 90 95

Tyr Arg Val Lys Pro Ser Asn Ser Ser Cys Asp Pro Gly Ala Ser Val
100 105 110

Asp Ile Val Val Ser Pro His Gly Gly Leu Thr Val Ser Ala Gln Asp
115 120 125

Arg Phe Leu Ile Met Ala Ala Glu Met Glu Gln Ser Ser Gly Thr Gly
130 135 140

Pro Ala Glu Leu Thr Gln Phe Trp Lys Glu Val Pro Arg Asn Lys Val
145 150 155 160

Met Glu His Arg Leu Arg Cys His Thr Val Glu Ser Ser Lys Pro Asn
165 170 175

Thr Leu Thr Leu Lys Asp Asn Ala Phe Asn Met Ser Asp Lys Thr Ser
180 185 190

Glu Asp Ile Cys Leu Gln Leu Ser Arg Leu Leu Glu Ser Asn Arg Lys

<210> 1144
<211> 62
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (40)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1144
Lys Val Leu Leu Pro Tyr Leu Cys Ser Ser Phe Pro Met Ala Glu Phe
1 5 10 15

Cys Asn Tyr Ile Gln Asn Ile Val Tyr Ile Leu Phe Leu Lys Leu Tyr
20 25 30

Tyr Ile Gly Trp Ile Leu Leu Xaa Trp Gly Thr Gly Ala Tyr Ile Gln
35 40 45

Gly Ser Phe Leu Ser Thr Cys Leu Ser Thr Ile Cys Cys Val
50 55 60

<210> 1145
<211> 105
<212> PRT
<213> Homo sapiens

<400> 1145
Asn Glu Ser Leu Thr Gln Phe His Ala Thr Phe Cys Leu Phe Ser Lys
1 5 10 15

Glu Arg Leu Leu Gly Leu Ser Val Thr Arg His Val Trp Ile Ala Ser
20 25 30

His Ile His Ile Met Pro Gly Ser Pro Gln Pro Thr His Val Leu Glu
35 40 45

Val Ala Thr Cys Gln Val Ser Val Phe Ser Leu Asn Ser Lys Trp Val
50 55 60

Asn His Met Asn Ser Thr Gly Pro Cys Glu Asn Gly Val Lys Ala Ser
65 70 75 80

Phe Val Pro Phe Ser Ile Ser Leu Thr His Met Cys Ser Leu Ser Thr
85 90 95

Ala Glu Asp Arg Phe Val Cys Ala Leu
100 105

<221> SITE
<222> (184)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (190)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1143

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Ala Leu Ala Leu Cys Gln Cys Gly Val Pro Ala Cys Ser His Val Pro
  1               5                  10                  15

Met Trp Ser Ala Arg Leu Leu Met Cys Pro Cys Gly Val Pro Ala Cys
             20                  25                  30

Ser His Met Xaa Met Arg Ser Ala Xaa Leu Leu Thr His Ala His Val
         35                  40                  45

Glu Cys Pro Pro Ala His Thr Cys Pro Cys Gly Val Pro Ala Cys Ser
     50                  55                  60

His Thr Cys Pro Cys Gly Val Pro Thr Cys Ser Cys Ala His Val Glu
 65                  70                  75                  80

Cys Pro Pro Ala His Met Cys Arg Cys Gly Val Pro Pro Ala His Thr
                 85                  90                  95

Arg Ala His Val Glu Cys Pro Pro Ala His Xaa Cys Arg Cys Gly Val
            100                 105                 110

Pro Ala Cys Ser His Val Pro Met Arg Ser Ala Arg Leu Leu Thr Arg
        115                 120                 125

Ala Asp Ala Glu Cys Pro Pro Ala His Thr Cys Pro Cys Gly Val Pro
    130                 135                 140

Ala Cys Ser His Val Pro Thr Arg Ser Ala Arg Leu Leu Thr Arg Ala
145                 150                 155                 160

Asp Ala Glu Cys Pro Pro Ala His Thr Cys Xaa Arg Gly Xaa Pro Ala
                165                 170                 175

Cys Ser His Xaa Pro Thr Arg Xaa Ala Arg Leu Leu Thr Xaa Ala His
            180                 185                 190

Val Glu Cys Arg Leu Leu Thr Leu Pro Met Trp
        195                 200
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<400> 1142
Phe Cys Val Glu Leu Ile Ser Gln Cys Arg Gly Lys Asn Ser Leu Gly
1 5 10 15

Ser Ser Leu Asp Ile Thr Val His Arg Ala Ser His Gln Asp Asp Pro
20 25 30

Thr Phe Tyr Gly Gly Pro Gly Ile Gly Ser Pro Glu Pro Ile Thr Gln
35 40 45

Xaa Pro Ser Asp Gly Trp Gly Xaa Trp
50 55

<210> 1143
<211> 203
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (36)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (41)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (107)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (171)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (174)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (180)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

Glu Arg Met Asn Tyr Leu Thr Ser Ser Ser Arg Asp Val
85 90

<210> 1141
<211> 63
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (56)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (60)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1141
Lys Ile Ile Ile Phe Ser Val Val His Asn Asn Val Leu Asn Ile Leu
1 5 10 15

Leu Ile Lys Gly Ala Met Ser Leu Cys Met Val Leu Asn Val Ser Cys
20 25 30

Val Pro Phe Ala Gln Leu Arg Ile Leu Gln Leu Gly Phe Asn Glu Trp
35 40 45

Gly His Gly Ile Ile Met Gly Xaa Cys Lys Lys Xaa Lys Arg Gly
50 55 60

<210> 1142
<211> 57
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (49)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (56)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (54)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1139
Ile Gly Phe Gly His Asp Thr Asp Phe Leu Glu Ala Arg Cys Cys Phe
1 5 10 15

Xaa Ser Gly Met Gly Val His Asp Cys Pro Glu Gln Pro Arg Ser Gln
20 25 30

Phe Phe Arg Arg Leu Ser Ala Ile Ser Ala Gln Ala Phe Thr Gly Gln
35 40 45

Gly Gln Lys Gln Leu Xaa Gly Val Gly Gly Ala Ser Ser Thr Ala Ala
50 55 60

Trp Pro Gln Glu Ile Gly Cys Ser Ser Ser Ser Ala Cys Gly Met Val
65 70 75 80

Arg Asn Asn Leu Gly Gly
85

<210> 1140
<211> 93
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (12)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1140
Ile Lys Lys Tyr Ile Phe His Phe Tyr Phe Ile Xaa Asn His Asn Tyr
1 5 10 15

Leu Leu Arg Arg Cys Met His Leu Leu Asp Thr Val Gln Leu Leu Thr
20 25 30

Trp Asn Glu Ile Gly His Cys Cys Pro His Phe Leu Leu His Val Gly
35 40 45

Val His Ile Val Leu Asp Phe Leu Ser Asp Gly Leu Glu Asn Pro Val
50 55 60

Ser Gln Lys Tyr Glu Ile Ile Arg Arg Ile Ile Val Gln Ser Tyr Val
65 70 75 80

Gly Lys Ala Lys Asn Leu Gly Ser Xaa Xaa Pro Trp Ala Leu Lys Asn
20 25 30

Val Val Leu Phe Lys Glu Gln Gly Ser Xaa Gln Gly Cys Phe Trp Gly
35 40 45

<210> 1138
<211> 53
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (10)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (53)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1138
Lys Met Cys Leu Phe Gln Leu Ser Gln Xaa Gly Asn Val Thr Gly Ile
1 5 10 15

Arg Trp Val Lys Ala Arg Asp Ala Ala Arg His Ser Thr Val His Arg
20 25 30

Thr Thr Pro Thr Thr Lys Asn Tyr Leu Ala Gln Asn Val Asn Asn Ala
35 40 45

Glu Val Glu Lys Xaa
50

<210> 1139
<211> 86
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (17)
<223> Xaa equals any of the naturally occurring L-amino acids

<210> 1136
<211> 51
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (16)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1136
Pro Glu Ser Arg His Ile Leu Val Cys Thr Gln Leu Trp Ala Lys Xaa
1 5 10 15

Arg Trp Arg His Leu Ser Ser His Ala Glu Leu His Ser Arg Leu Arg
20 25 30

Thr Trp Val Gly Ser Ser Lys Val Ile Ala Lys Ala Pro Leu Ser Gly
35 40 45

Gly Tyr Thr
50

<210> 1137
<211> 48
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (25)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (26)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (42)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1137
Ser Arg Leu Ser Phe Gln Asp Leu Ala Pro Ala Leu Gly Met Val Gly
1 5 10 15

Asp Asp Leu Pro Ala Glu Arg Ser Asp Ile Phe Trp Val Xaa
35 40 45

<210> 1134
<211> 65
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (20)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1134
Asn Ser Ala Arg Glu Val Ile Tyr Met Ile His Ser Gln Glu Leu Leu
1 5 10 15

Asp Arg Lys Xaa Gln Gly Pro Gln Pro Leu Cys Pro Leu Tyr Pro Gln
20 25 30

Met Ala Leu Gly Ile Asn Ser Ser Gly Ile Ala Leu Lys Asn Ser Ala
35 40 45

Ser Cys Phe Ala Glu Cys His Gly His Val Ile Leu Arg Ser His Asn
50 55 60

Thr
65

<210> 1135
<211> 30
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (26)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1135
Ser Cys Val Arg Gly Asn Leu Glu Pro Tyr Ile Asn Thr Tyr Ile Ile
1 5 10 15

Lys Gly Lys Ile Leu Lys Val Asn Gly Xaa Lys Ala Ser Ile
20 25 30

<210> 1132
<211> 63
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (60)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (61)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (63)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1132
Lys Thr Arg Gly Lys Leu Asp Lys Glu Pro Arg Pro Thr Gly Val Cys
1 5 10 15

Cys Leu Gln Glu Thr His Leu Thr Cys Gly Gly Ile His Arg Leu Lys
20 25 30

Ile Lys Glu Trp Arg Lys Ile Phe Gln Ala Asn Gly Lys Gln Lys Lys
35 40 45

Ala Gly Val Ala Leu Leu Leu Ser Asp Lys Thr Xaa Xaa Ala Xaa
50 55 60

<210> 1133
<211> 46
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (46)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1133
Pro Ser Gln Val Ser Leu Asn His Pro Asp Asp Leu Pro Val Glu Arg
1 5 10 15

Ser Tyr Pro Ser Gln Val Tyr Phe Leu Met Arg Thr Gly His Ser Trp
20 25 30

<400> 1130
Phe Val Lys Gly Val Asn Cys Leu Ile Tyr Leu Thr Arg Phe Phe Lys
1 5 10 15

Gln Ile Leu Ile Gly His Ala Leu His Ala Arg Leu Trp Ala Trp Tyr
20 25 30

Leu Arg Val Leu Thr Gly Glu Ala Gly Ser Gly Asn Lys His Met Cys
35 40 45

Asn Cys Cys Val Asp Ser Leu Ile Gly Arg Lys Ser Ala Asn Lys Glu
50 55 60

Ala Asp Lys Leu Glu Asn Glu Arg Lys Val Met Cys
65 70 75

<210> 1131
<211> 121
<212> PRT
<213> Homo sapiens

<400> 1131
Thr Pro Tyr Tyr Leu Arg Val Arg Arg Lys Asn Pro Val Thr Ser Thr
1 5 10 15

Tyr Ser Lys Met Ser Leu Gln Leu Tyr Gln Val Asp Ser Arg Thr Tyr
20 25 30

Leu Leu Asp Phe Arg Ser Ile Asp Asp Glu Ile Thr Glu Ala Lys Ser
35 40 45

Gly Thr Ala Thr Pro Gln Arg Ser Gly Ser Val Ser Asn Tyr Arg Ser
50 55 60

Cys Gln Arg Ser Asp Ser Asp Ala Glu Ala Gln Gly Lys Ser Ser Glu
65 70 75 80

Val Ser Leu Thr Ser Ser Val Thr Ser Leu Asp Ser Ser Pro Val Asp
85 90 95

Leu Thr Pro Arg Pro Gly Ser His Thr Ile Glu Phe Phe Glu Met Cys
100 105 110

Ala Asn Leu Ile Lys Ile Leu Ala Gln
115 120

35

<210> 1128
<211> 70
<212> PRT
<213> Homo sapiens

<400> 1128
Gly Thr Glu Cys Thr His Gly Lys Lys Pro Cys Phe Val Phe Cys Ser
1 5 10 15

Leu Phe Phe Leu Ser Pro Phe Leu Ser Phe Met Ala Gly Asp Met Ile
20 25 30

Tyr Cys Ser His Pro Ser Trp Gly Leu Ile His His Thr Arg Val Ala
35 40 45

Arg Arg Leu Trp Gln Gln Leu Phe Ala Leu Asn Gln Thr Glu Lys Leu
50 55 60

Ser Ile Ile Lys Gly Arg
65 70

<210> 1129
<211> 50
<212> PRT
<213> Homo sapiens

<400> 1129
His Leu Pro Leu Ser Glu Thr His Ser Pro Ile Leu Asn Ala Tyr Ala
1 5 10 15

Val Gly Tyr His Leu Pro Leu Glu Val Leu Glu Ala Ile Ser Cys Arg
20 25 30

Ser Arg Val Ala Met Gly Leu Asn Tyr Tyr Tyr Pro Pro Lys Met Leu
35 40 45

Cys Leu
50

<210> 1130
<211> 76
<212> PRT
<213> Homo sapiens

Phe Leu Leu Asp Cys Phe Ser Val Leu Tyr
65 70

<210> 1126
<211> 44
<212> PRT
<213> Homo sapiens

<400> 1126
Ile Ser Ser Thr Pro Ser Leu Thr Gln Ile Leu Val Phe Ile Met Asp
1 5 10 15

Phe Phe Phe Lys Leu Val Tyr Leu Ile Leu Ser Phe His Phe Trp Gln
20 25 30

His Met Asp Asp Phe Ile Phe Asn Asn His Ile Ser
35 40

<210> 1127
<211> 38
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (11)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (15)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (35)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1127
Leu Ser Pro Phe Glu Ala Ser Thr Asp Trp Xaa Lys Gln Ile Xaa Lys
1 5 10 15

Trp Asp Val Thr Gly Leu Ile Ser Thr Asn Arg Leu Phe Thr Thr Pro
20 25 30

Ser Trp Xaa Pro Val Ser

65 70 75 80

Gly Pro Trp Asn His Ile Tyr Glu Phe Val Asn His Ala Ile Lys Ala
85 90 95

Gln Ala Lys Tyr Lys Glu Trp Leu Pro His Leu Leu Val Ala Gly Phe
100 105 110

Asp Pro Leu Ile Leu Leu Cys Asn Ser Trp Ile Asp Ser Val Ser Ile
115 120 125

Asp Thr Leu Ile Phe Thr Leu Glu Phe Thr Asn Trp Lys Thr Leu Ala
130 135 140

Pro Ala Val Glu Arg Met Leu Ser Ala Arg Ala Ser Asn Ala Trp Ile
145 150 155 160

Leu Gln Gln His Ile Ala Thr Val Pro Ser Leu Thr His Leu Cys Arg
165 170 175

Leu Glu Ile Arg Ser Ser Leu Lys Ser Glu Arg Leu Arg Ser Asp Ser
180 185 190

Tyr Ile Ser Gln Leu Pro Leu Pro Arg Ser Leu His Asn Tyr Leu Leu
195 200 205

Tyr Glu Asp Val Leu Arg Met Tyr Glu Val Pro Glu Leu Ala Ala Ile
210 215 220

Gln Asp Gly
225

<210> 1125
<211> 74
<212> PRT
<213> Homo sapiens

<400> 1125
Asn Val Ala Cys Asn Thr Val Leu Pro Ala Lys Phe Ser Thr Phe Cys
1 5 10 15

Asn Leu Phe Tyr Phe Phe Gly Cys Lys Ala Phe Leu Leu Ser Ile Val
20 25 30

Ile Leu Tyr Met Phe Cys Pro Ser Cys Ile Val Met Phe Gln Ser Ile
35 40 45

Ile Gln Leu Trp Leu Leu Lys Ser Tyr Ser Cys Glu Asp Leu Pro Leu
50 55 60

<220>
<221> SITE
<222> (12)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (16)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1123
Lys Lys Lys Lys Gly Cys Thr Lys Ile Ser Phe Xaa Gln Arg Leu Xaa
1 5 10 15

Lys Arg Lys Lys Lys Arg Asn Thr Cys Val Leu Lys Thr Ile Cys Ile
20 25 30

Phe Ser Phe Leu Asp His Thr Val Ala Asn Tyr Cys Tyr
35 40 45

<210> 1124
<211> 227
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (27)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (38)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1124
Arg Leu Pro Arg Asn Ile Thr Pro Glu Trp Leu Gln Pro Arg Arg Pro
1 5 10 15

Gly Val Pro Cys Phe Trp Ile Gln Phe Ser Xaa Val His Gly Phe Pro
20 25 30

Lys Glu Trp Ser Cys Xaa Phe Phe Gly Ile Val Asn Ile Leu Leu Lys
35 40 45

Tyr Gly Ala Gln Ile Asn Glu Leu His Leu Ala Tyr Cys Leu Lys Tyr
50 55 60

Glu Lys Phe Ser Ile Phe Arg Tyr Phe Leu Arg Lys Gly Cys Ser Leu

<220>
<221> SITE
<222> (2)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1121
Pro Xaa Leu Tyr Tyr Val Lys Leu Pro Ile Lys Tyr Phe Tyr Asp Tyr
1 5 10 15

Arg Phe Cys Ile Phe Val Tyr Asn Tyr Leu Lys Ser Phe Met Leu Tyr
20 25 30

Leu Glu Phe Gln Pro Arg Asn His Thr Val Leu Lys Phe Ser Trp Gly
35 40 45

Leu Leu Leu Ser Leu Asn His Leu Leu Asn Ile Tyr Leu Pro Lys Gly
50 55 60

Asp Phe
65

<210> 1122
<211> 41
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (41)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1122
Ser Gln His Phe Gly Asn Ala Glu Val Ser Gly Ser Pro Glu Val Arg
1 5 10 15

Ser Ser Arg Pro Ala Trp Ala Asn Met Val Lys Pro His Phe Leu Leu
20 25 30

Lys Lys Lys Lys Leu Gly Gly Gly Xaa
35 40

<210> 1123
<211> 45
<212> PRT
<213> Homo sapiens

<221> SITE
<222> (40)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (49)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (53)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (57)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (58)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (63)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1120
Thr Ser Ser Ser Tyr Ser Asp Lys Gln Asp Thr Pro Pro His Pro Thr
1 5 10 15

Cys Ser Ile Ser Leu Ser Pro Leu Pro Gln Thr His Leu His Cys Ser
20 25 30

Ser Cys Arg Gly Ser Arg Lys Xaa Ile Leu Lys Ile Thr Arg Val Gly
35 40 45

Xaa Gly Ala Val Xaa Ser Gly Cys Xaa Xaa Gln His Phe Gly Xaa Gly
50 55 60

Pro Gly Lys Ala Val His Phe Gly Val Lys Gly Phe Leu
65 70 75

<210> 1121
<211> 66
<212> PRT
<213> Homo sapiens

<400> 1118

Pro Ser Val Glu Trp Glu Gln Gly His Ser Glu Arg Ala Glu Ser Pro
1 5 10 15

His Pro Pro Thr Leu Gln Gln Ala Ala Ala Gly Arg Leu Val Asn Cys
20 25 30

Arg Ala Gly Thr Gln Gln Gln Ala Ala Gly Thr Pro Xaa Leu Leu Gln
35 40 45

Leu Met Ala Val Cys Leu Ser Gln Asp Leu Glu Lys Thr Arg Leu Val
50 55 60

Tyr Glu Arg Ile Thr Ile Gly Thr Leu Phe Met Ser Phe Met Asn Xaa
65 70 75 80

<210> 1119
<211> 73
<212> PRT
<213> Homo sapiens

<400> 1119

Thr Gln Gln Ser Val Pro Val Ile Val His Pro Gly Val Ala Leu Leu
1 5 10 15

Ile Pro Ser Gly Met Tyr Leu Pro Ser Glu Leu His Phe Phe Lys Met
20 25 30

Leu Trp Val Val Gly Trp Glu Thr Ile Leu Gln Pro Ser Ser Asp Leu
35 40 45

Ile Asn Ser Leu Arg Asp Cys Lys Ala Glu Ser Thr Ser Gly His Ser
50 55 60

Trp Glu Thr Asp Pro Leu Val Met Lys
65 70

<210> 1120
<211> 77
<212> PRT
<213> Homo sapiens

<220>

<400> 1116

Gln Xaa Glu Leu Xaa Leu Lys Lys Lys Lys Lys Ile Ile Cys Lys Ile
1 5 10 15

Asn Ser Gly Ile Val Val Leu Phe Lys Glu Met Phe Cys Lys Leu Ser
20 25 30

Ser His Tyr Ile Ile Phe Ile Val Leu Ser
35 40

<210> 1117
<211> 62
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (2)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1117

Lys Xaa Ala Thr Pro Arg Pro Pro Gly Glu Thr Arg Pro Arg Met Pro
1 5 10 15

Arg Leu Phe Leu Phe His Leu Leu Glu Phe Cys Leu Leu Leu Asn Gln
20 25 30

Phe Ser Arg Ala Val Ala Ala Lys Trp Lys Asp Asp Val Ile Lys Leu
35 40 45

Cys Gly Arg Glu Leu Val Arg Ala Gln Ile Ala Ile Leu Gly
50 55 60

<210> 1118
<211> 80
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (45)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (80)
<223> Xaa equals any of the naturally occurring L-amino acids

100 105 110

Ser Ser Ser Trp Gly Pro Ser Leu Val Pro His Ser Leu
115 120 125

<210> 1115
<211> 109
<212> PRT
<213> Homo sapiens

<400> 1115
Ile Asp Lys Arg Val Pro Cys Asn Gln Leu Lys Ser Val Leu Cys Val
1 5 10 15

Cys Phe Val Ser Gly Ala Glu Tyr Asp Asn Leu Pro Thr Val Pro Leu
20 25 30

Phe Glu Val Gly Leu Ala Leu Glu Ser Tyr Cys Lys Cys Leu Ala Cys
35 40 45

Met Ile Val Pro Gly His Pro Thr Leu Glu Phe Ala Pro Ser Cys Phe
50 55 60

Ser Glu Asp Ala Val Asn Arg Phe Arg Phe Tyr Cys Leu Trp Ile Trp
65 70 75 80

Gly Val Thr Val Ala Leu Phe Thr Phe Leu Ile Lys Ile His Met Lys
85 90 95

Thr Arg Lys Lys Trp Leu Phe Leu Pro Arg Leu Cys Thr
100 105

<210> 1116
<211> 42
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (2)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (5)
<223> Xaa equals any of the naturally occurring L-amino acids

<221> SITE
<222> (5)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (37)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1113
Xaa Ala Xaa Xaa Xaa Trp Pro Pro Pro Lys Gly Asn Lys Ser Trp Ser
1   5   10   15

Ser Thr Ala Val Ala Ala Ala Leu Glu Leu Val Asp Pro Pro Gly Cys
            20   25   30

Arg Gln Lys Gly Xaa Phe Lys Ile
        35   40

<210> 1114
<211> 125
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (26)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1114
Arg Lys Arg Leu Ala Phe Trp Thr Thr Gly Ile Arg Asp Trp Leu Thr
1   5   10   15

Trp Arg Thr His Ser Val Cys Ala Glu Xaa Arg Ala Leu Thr Ser Ala
            20   25   30

Glu Ala Glu Val Gly Ala Cys Pro Arg Gly Leu Thr Arg Phe Ala Ser
        35   40   45

Arg Pro Gln Pro Leu His Leu Leu Lys Ala Gln Glu Met Ile Arg Leu
    50   55   60

Lys His Pro Pro Ile Leu Leu Phe Cys Leu Gly Trp Lys Thr Trp Pro
65   70   75   80

Arg Ser Trp Arg Pro Leu Leu His Leu Pro Asp Ser Gln Glu Ser Ser
                85   90   95

Asp Gln Ser Cys Arg Thr Leu Leu Leu Pro Leu Ala Leu Leu Pro Phe

```
Leu Leu Gly Thr Asp Ser Ala Glu Pro Glu Met Asp Val Arg Lys Arg
    130                 135                 140

Thr Gly Val Ala Gly Ser Gln Pro Val Ser Glu Lys Gln Ser Ala Ala
145                 150                 155                 160

Glu Leu Asp Leu Val Leu Gln Arg His Gln Asn Leu Gln Glu Lys Leu
                165                 170                 175

Ala Glu Glu Met Leu Gly Leu Ala Arg Ser Leu Lys Thr Asn Thr Leu
            180                 185                 190

Ala Ala Gln Ser Val Ile Lys Lys Asp Asn Gln Thr Leu Ser His Ser
        195                 200                 205

Leu Lys Met Ala Asp Gln Asn Leu Glu Lys Leu Lys Thr Glu Ser Glu
    210                 215                 220

Arg Leu Glu Gln His Thr Gln Lys Ser Val Asn Trp Leu Leu Trp Ala
225                 230                 235                 240

Met Leu Ile Ile Val Cys Phe Ile Phe Ile Ser Met Ile Leu Phe Ile
                245                 250                 255

Arg Ile Met Pro Lys Leu Lys
            260
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<210> 1113
<211> 40
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (1)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (3)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (4)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<210> 1111
<211> 44
<212> PRT
<213> Homo sapiens

<400> 1111
Phe Met Asn Leu Phe Pro Gly Lys Pro Tyr Asp Ser Thr Val Lys Gly
1 5 10 15

Val Arg Ile Val Lys Met Val Phe Ser Asp Gln Val Cys Ala His Ala
20 25 30

Trp Pro Trp Ile Asp Ser Glu Met Arg Phe Phe Val
35 40

<210> 1112
<211> 263
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (19)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1112
Gly Arg Ala Ile Met Ala Ala Ser Arg Leu Glu Leu Asn Leu Val Arg
1 5 10 15

Leu Leu Xaa Arg Cys Glu Ala Met Ala Ala Glu Lys Arg Asp Pro Asp
20 25 30

Glu Trp Arg Leu Glu Lys Tyr Val Gly Ala Leu Glu Asp Met Leu Gln
35 40 45

Ala Leu Lys Val His Ala Ser Lys Pro Ala Ser Glu Val Ile Asn Glu
50 55 60

Tyr Ser Trp Lys Val Asp Phe Leu Lys Gly Met Leu Gln Ala Glu Lys
65 70 75 80

Leu Thr Ser Ser Ser Glu Lys Ala Leu Ala Asn Gln Phe Leu Ala Pro
85 90 95

Gly Arg Val Pro Thr Thr Ala Arg Glu Arg Val Pro Ala Thr Lys Thr
100 105 110

Val His Leu Gln Ser Arg Ala Arg Tyr Thr Ser Glu Met Arg Ser Glu
115 120 125

<222> (77)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1109
Trp Asn His Leu His Asp Leu Arg Val Ser Arg Asp Leu Leu Ser Arg
1 5 10 15

Ile Leu Lys Glu His Tyr Lys Phe Arg Glu Lys Ile Asn Ile Leu Ile
20 25 30

Ile Leu Lys Leu Arg Asn Phe Ser Ser Leu Arg Gly His Lys Val Phe
35 40 45

Val Val Tyr Thr Ser Asn Lys Ser Ser Ile Phe Xaa Asn Xaa Trp Xaa
50 55 60

Glu Xaa Xaa Trp Tyr Val Lys Lys Arg Pro Xaa Pro Xaa Gly
65 70 75

<210> 1110
<211> 62
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (30)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (41)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1110
Thr Trp Ser Leu His Lys Ile Gln Lys Leu Arg Trp Ala Trp Trp Cys
1 5 10 15

Val Pro Ile Val Pro Leu Leu Val Gly Leu Arg Gln Glu Xaa His Leu
20 25 30

Ser Pro Gly Gly Arg Gly Tyr Ser Xaa Pro Arg Val His Tyr Cys Thr
35 40 45

Pro Ala Arg Ala Arg Glu Arg Asp Pro Val Ser Ile Asn Lys
50 55 60

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1108
Glu Val Ile Lys Val Met Asn Thr Cys Gln Cys Ser Gly Phe Thr Pro
1   5   10   15

Val Leu Gln His Phe Gly Glu Ala Lys Ala Gly Arg Ser Phe Glu Pro
            20   25   30

Gln Asp Xaa Gly Thr Thr Xaa Gly Asn Ile Val Arg Pro Xaa Val
        35   40   45

<210> 1109
<211> 78
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (60)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (62)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (64)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (66)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (67)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (75)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE

<213> Homo sapiens

<220>
<221> SITE
<222> (41)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (72)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1107
Ile Ile Ala Ala Leu Ser Pro Ile Gln Ile Leu Pro Ser Asp Gly Lys
1 5 10 15

Asp Gln Phe Ser Cys Gly Asn Ser Val Ala Asp Gln Ala Phe Leu Asp
20 25 30

Ser Leu Ser Ala Ser Thr Ala Gln Xaa Ser Ser Ser Ala Ala Ser Asn
35 40 45

Asn His Gln Val Arg Leu Thr Ser Ser Phe Trp Met Trp Leu Ala Leu
50 55 60

Arg Lys Thr Glu Arg Ile Cys Xaa Arg Leu Val Met His Tyr Ser Tyr
65 70 75 80

Cys His Ser Pro Lys Ala Lys Thr Lys Ser Leu
85 90

<210> 1108
<211> 47
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (35)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (39)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (46)

<210> 1106
<211> 79
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (54)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (57)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (62)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (68)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (74)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1106
```
Gly Leu Ser His Ser Asn Ser Ser Tyr Leu Glu Pro Leu Gly Ser Asp
  1               5                  10                  15

Val Asp Arg Ala Asn Val Lys Phe Thr Glu Asn Thr Cys Val Phe Arg
             20                  25                  30

Thr Leu Lys Gly Thr Ile Arg Ala Cys Phe Pro Ser Leu Tyr Met His
         35                  40                  45

Ile Phe Gly Ile Ser Xaa Gly Leu Xaa Asp Val Val Ile Xaa Asn Thr
     50                  55                  60

Ala Arg Met Xaa Ala Val Leu Ile His Xaa Gln Lys Arg Gly Gly
 65                  70                  75
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<210> 1107
<211> 91
<212> PRT

<220>
<221> SITE
<222> (45)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1104
Lys Arg Tyr Ser Val Leu Ile Leu Cys Lys Lys Xaa Lys Ser Ser Asn
1 5 10 15

Cys Phe Pro Met Xaa Lys Ile Thr Met Ser Cys Ile Met Leu Leu Ser
20 25 30

Phe Tyr Val Asn Ile Ser Tyr Xaa Ser Ser Ile Lys Xaa Ile Tyr
35 40 45

<210> 1105
<211> 72
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (65)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (69)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1105
Leu Leu Lys Leu Cys Asn Leu Gln Asn Ile Ala Ile Lys Leu His Thr
1 5 10 15

Met Phe Ser Ile Ile Leu Ile Asp Leu Pro Tyr Lys His Leu Asn Lys
20 25 30

Lys Tyr Tyr Leu Met Ile Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys
35 40 45

Lys Lys Lys Lys Lys Arg Glu Lys Lys Lys Lys Lys Lys Lys Lys Lys
50 55 60

Xaa Gly Gly Gly Xaa Lys Lys Lys
65 70

<212> PRT
<213> Homo sapiens

<400> 1102
Phe Gly Thr Ser Ala Pro Pro Arg Pro Ala Asn Phe Cys Ile Phe Gly
1   5   10   15

Arg Asp Gly Val Ser Ser Arg Trp Leu Gly
            20   25

<210> 1103
<211> 51
<212> PRT
<213> Homo sapiens

<400> 1103
Gly Ser Glu Ser Asn Arg Leu Lys Phe Lys Ser Ser Ser Ala Thr Trp
1   5   10   15

Leu Met Leu Ser Glu Pro Gln Arg Pro Gln Leu Leu Asn Arg Gly Asn
            20   25   30

His Pro His Leu Ser Ser Phe Gly Arg Lys Leu Asn Glu Ile Tyr Trp
        35   40   45

Gly Ser Arg
    50

<210> 1104
<211> 47
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (12)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (21)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (40)
<223> Xaa equals any of the naturally occurring L-amino acids

Phe Gly Thr Arg Asp Thr Arg Val Lys Glu Arg Gly His Ala Val Ser
1 5 10 15

Glu Lys Leu Leu Leu Gly Trp Lys Gly Gln Leu His Lys Gly Cys Ser
20 25 30

Cys Arg Gly Ser Pro Ala Ala Arg Cys Leu Leu Thr Val Pro Arg Leu
35 40 45

Ser Pro Asp Thr Glu Gly Cys Lys Gly Ser Leu Phe Leu Leu Ser Gly
50 55 60

Ile Gly Lys Leu Tyr His Leu Ser Leu Pro Thr Leu Thr Ser Ala Pro
65 70 75 80

Ala Thr Leu Ser Leu Trp Leu Leu Leu Thr Phe Ser Pro Leu Ile Phe
85 90 95

Ser Pro Asp Gln Val Leu Gly Xaa Ser
100 105

<210> 1101
<211> 93
<212> PRT
<213> Homo sapiens

<400> 1101
Ser Gly Arg Thr Leu Val Leu Arg Leu Ala Tyr Val Ser Arg Thr Val
1 5 10 15

Thr Thr Met Ala Pro Glu Val Leu Pro Lys Pro Arg Met Arg Gly Leu
20 25 30

Leu Ala Arg Arg Leu Arg Asn His Met Ala Val Ala Phe Val Leu Ser
35 40 45

Leu Gly Val Ala Ala Leu Tyr Lys Phe Arg Val Ala Asp Gln Arg Lys
50 55 60

Lys Ala Tyr Ala Asp Phe Tyr Arg Asn Tyr Asp Val Met Lys Asp Phe
65 70 75 80

Glu Glu Met Arg Lys Ala Gly Ile Phe Gln Ser Val Lys
85 90

<210> 1102
<211> 26

Asn Arg Val Thr Val Tyr Glu Tyr Asp Thr Arg Glu Asp Gln Trp Ile
35 40 45

Asn Ile Gly Thr Met Leu Gly Leu Leu Gln Phe Asp Ser Gly Phe Ile
50 55 60

Cys Leu Cys Ala Arg Val Tyr Pro Ser Cys Leu Glu Pro Gly Gln Ser
65 70 75 80

Phe Ile Thr Glu Glu Asp Asp Ala Arg Ser Xaa Ser Ser Thr Glu Trp
85 90 95

Asp Leu Asp Gly Phe Ser Glu Leu Asp Ser Glu Ser Gly Ser Ser Ser
100 105 110

Ser Phe Ser Asp Asp Glu Val Trp Val Gln Val Ala Pro Gln Arg Asn
115 120 125

Ala Gln Asp Gln Gln Gly Ser Leu
130 135

<210> 1099
<211> 37
<212> PRT
<213> Homo sapiens

<400> 1099
Arg His Glu Arg Lys Val Lys Lys Arg Lys Lys Glu Arg Asn Lys Gln
1 5 10 15

Thr Lys Gln Leu Ala Tyr Ile Tyr Leu Leu Asn Thr Gly Arg Ser Ile
20 25 30

His Asn Leu Thr Leu
35

<210> 1100
<211> 105
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (104)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1100

<221> SITE
<222> (34)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (35)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (36)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (37)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1097
Lys Lys His Trp Gly Met Leu Gln Asp Ile Gly Leu Gly Lys Asp Phe
1 5 10 15

Leu Ser Asn Thr Leu Lys Gly Gln Ala Thr Gln Ala Lys Met Xaa Xaa
20 25 30

Trp Xaa Xaa Xaa Xaa Leu Lys Asn Phe Tyr Thr Ala Lys Glu Thr Lys
35 40 45

<210> 1098
<211> 136
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (91)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1098
Asn Ile Pro Leu Asp Ser Glu Thr His Asn Tyr Gln Ile Val Asn His
1 5 10 15

Asp Gln Lys Leu Leu Leu Ile Thr Ser Thr Thr Pro Gln Trp Lys Lys
20 25 30

Xaa Val Met Pro Ala Gln Val Thr Thr Ile Met Ile Lys Asn Cys Leu
165 170 175

Pro Gln Gly Val Ser Met Lys Ser Thr Arg Gly Gln Gly Gln Gly Ala
180 185 190

Arg Val Cys Thr Pro Xaa Leu Leu Glu Ile Cys Val Glu Xaa Ser Asp
195 200 205

Ser Ser Leu Val Arg Gln
210

<210> 1096
<211> 62
<212> PRT
<213> Homo sapiens

<400> 1096
Ile Arg His Glu Lys Lys Glu Arg Met Lys Glu Arg Lys Glu Lys Lys
1 5 10 15

Glu Arg Lys Glu Lys Gly Lys Lys Glu Arg Lys Glu Arg Lys Glu Arg
20 25 30

Lys Arg Glu Lys Glu Arg Arg Lys Arg Arg Lys Gly Ile Pro Gly Ile
35 40 45

Tyr His Cys Met Ser Lys Gly Arg Val Val Asp Arg His Ser
50 55 60

<210> 1097
<211> 48
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (31)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (32)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<210> 1095
<211> 214
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (161)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (198)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (206)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1095
Ile Leu Phe Ser Ser Leu Leu Thr Cys Asn Phe Cys Leu Pro Ile Pro
1 5 10 15

Pro Ser Pro Leu Ser Phe Pro Glu Arg His Leu Gly Ser Tyr Leu Leu
20 25 30

Asp Ser Glu Asn Thr Ser Gly Ala Leu Pro Arg Leu Pro Gln Thr Pro
35 40 45

Lys Gln Pro Gln Lys Arg Ser Arg Ala Ala Phe Ser His Thr Gln Val
50 55 60

Ile Glu Leu Glu Arg Lys Phe Ser His Gln Lys Tyr Leu Ser Ala Pro
65 70 75 80

Glu Arg Ala His Leu Ala Lys Asn Leu Lys Leu Thr Glu Thr Gln Val
85 90 95

Lys Ile Trp Phe Gln Asn Arg Arg Tyr Lys Thr Lys Arg Lys Gln Leu
100 105 110

Ser Ser Glu Leu Gly Asp Leu Glu Lys His Ser Ser Leu Pro Ala Leu
115 120 125

Lys Glu Arg Pro Ser Pro Gly Pro Pro Trp Ser Pro Cys Ile Thr Ala
130 135 140

Ile Leu Thr Thr His Thr Cys Thr Ala Trp Ala Val Glu Pro Ser Phe
145 150 155 160

210 215 220

Arg Ser Ser Cys Ala Pro Gly Val Phe Ser Val
225 230 235

<210> 1094
<211> 128
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (3)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (4)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1094
Arg Arg Xaa Xaa Gly Arg Thr Asp Thr Ser Arg Ser Thr Ser Gly Glu
1 5 10 15

Pro Lys Glu Arg Asp Lys Glu Glu Gly Lys Asp Ser Lys Pro Arg Ser
20 25 30

Leu Arg Phe Thr Trp Ser Met Lys Thr Thr Ser Ser Met Asp Pro Asn
35 40 45

Asp Met Met Arg Glu Ile Arg Lys Val Leu Asp Ala Asn Asn Cys Asp
50 55 60

Tyr Glu Gln Lys Glu Arg Phe Leu Leu Phe Cys Val His Gly Asp Ala
65 70 75 80

Arg Gln Asp Ser Leu Val Gln Trp Glu Met Glu Val Cys Lys Leu Pro
85 90 95

Arg Leu Ser Leu Asn Gly Val Arg Phe Lys Arg Ile Ser Gly Thr Ser
100 105 110

Ile Ala Phe Lys Asn Ile Ala Ser Lys Ile Ala Asn Glu Leu Lys Leu
115 120 125

Val Ala Ala Ala Ser Gln Arg Glu Leu Ser Glu Lys Arg Leu
145 150 155

<210> 1093
<211> 235
<212> PRT
<213> Homo sapiens

<400> 1093
Arg Ala Ala Gln Leu Trp Val Trp Glu Gly Val Val Gln Pro Pro Ala
1 5 10 15

Ala Trp Gly Gly Pro Trp Ser Ala Ser Arg Cys Gln Gln Gly Lys Gly
20 25 30

Gly Val Leu Glu Asn Glu Gly Phe Ile Gly Leu Leu Arg Glu Ala Pro
35 40 45

Gln Pro Gln Thr His His Leu Ala Val Asp Thr Cys Val Ser Met Trp
50 55 60

Asp Leu Val Leu Ser Ile Ala Leu Ser Val Gly Cys Thr Gly Ala Val
65 70 75 80

Pro Leu Ile Gln Ser Arg Ile Val Gly Gly Trp Glu Cys Glu Lys His
85 90 95

Ser Gln Pro Trp Gln Val Ala Val Tyr Ser His Gly Trp Ala His Cys
100 105 110

Gly Gly Val Leu Val His Pro Gln Trp Val Leu Thr Ala Ala His Cys
115 120 125

Leu Lys Lys Asn Ser Gln Val Trp Leu Gly Arg His Asn Leu Phe Glu
130 135 140

Pro Glu Asp Thr Gly Gln Arg Val Pro Val Ser His Ser Phe Pro His
145 150 155 160

Pro Leu Tyr Asn Met Ser Leu Leu Lys His Gln Ser Leu Arg Pro Asp
165 170 175

Glu Asp Ser Ser His Asp Leu Met Leu Leu Arg Leu Ser Glu Pro Ala
180 185 190

Lys Ile Thr Asp Val Val Lys Val Leu Gly Leu Pro Pro Arg Ser Gln
195 200 205

His Trp Gly Pro Pro Ala Thr Pro Gln Ala Gly Ala Ala Ser Asn Gln

Glu Gln Val Met Glu Asp Glu Phe Asp Leu Xaa Ser Asp Xaa Glu Leu
65 70 75 80

Gln Ile Asp Glu Arg Leu Gly Lys Glu Lys Ala Thr Leu Ile Ile Arg
85 90 95

Pro Lys Phe Pro Arg Lys Leu Pro Arg Ala Asn Leu Ala Leu Thr Pro
100 105 110

Thr Glu Phe Val Asn Gln Glu Lys Leu Ser Leu Thr Leu Arg Arg Ile
115 120 125

Tyr Asn Arg
130

<210> 1092
<211> 158
<212> PRT
<213> Homo sapiens

<400> 1092
Leu Arg Ile Thr Val Leu Leu Thr Ser Phe Leu Met Val Leu Gly Thr
1 5 10 15

Gly Leu Arg Cys Ile Pro Ile Ser Asp Leu Ile Leu Lys Arg Arg Leu
20 25 30

Ile His Gly Gly Gln Met Leu Asn Gly Leu Ala Gly Pro Thr Val Met
35 40 45

Asn Ala Ala Pro Phe Leu Ser Thr Thr Trp Phe Ser Ala Asp Glu Arg
50 55 60

Ala Thr Ala Thr Ala Ile Ala Ser Met Leu Ser Tyr Leu Gly Gly Ala
65 70 75 80

Cys Ala Phe Leu Val Gly Pro Leu Val Val Pro Ala Pro Asn Gly Thr
85 90 95

Ser Pro Leu Leu Ala Ala Glu Ser Ser Arg Ala His Ile Lys Asp Arg
100 105 110

Ile Glu Ala Val Leu Tyr Ala Glu Phe Gly Val Val Cys Leu Ile Phe
115 120 125

Ser Ala Thr Leu Ala Tyr Phe Pro Pro Arg Pro Pro Leu Pro Pro Ser
130 135 140

Ser Ser Leu Gly Pro Gly Cys Ala Pro Gly Ala Gly Ser Asp Val Val
50 55 60

Ser Ser Pro Leu Arg Thr Gly Pro Ala Arg Ser Ser Trp Pro Pro Ser
65 70 75 80

Arg Ala Pro Ser Xaa Pro Pro Ser Ser Thr Ala Thr Thr Cys Arg Trp
85 90 95

<210> 1091
<211> 131
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (29)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (38)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (75)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (78)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1091
Lys Ala Lys Phe Asn Ile Thr Gly Ala Cys Leu Asn Asp Ser Asp Asp
1 5 10 15

Asp Ser Pro Asp Leu Asp Leu Asp Gly Asn Glu Ser Xaa Leu Ala Leu
20 25 30

Leu Met Ser Asn Gly Xaa Thr Lys Arg Val Lys Ser Leu Ser Lys Ser
35 40 45

Arg Arg Thr Lys Ile Ala Lys Lys Val Asp Lys Ala Arg Leu Met Ala
50 55 60

Ala Gln Arg Leu Met Lys Lys Glu Gln Asn Lys Ile Gly Val Lys Leu
245 250 255

Ser

<210> 1089
<211> 44
<212> PRT
<213> Homo sapiens

<400> 1089
Asn Ser Ala Arg Ala Asp Leu Arg Ala Ile Asn Ala Asn Leu Asn Glu
1 5 10 15

Lys Met Glu Ser Leu Thr Ala Val Ser Val Ser Ser Ile Ser Leu Ser
20 25 30

Asn Ser Cys Pro Ser Leu Thr Val Leu Val Ser Val
35 40

<210> 1090
<211> 96
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (23)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (85)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1090
Gly Arg Pro Ala Cys Ala Arg Glu Pro Gly Leu Glu Pro Tyr Leu Gln
1 5 10 15

Val Pro Asn Leu Arg Leu Xaa Ser Leu Ser Leu Pro Gln Pro Arg Thr
20 25 30

Lys Thr Ser Pro Pro Glu Gly Leu Pro Gln Leu Arg Glu Arg Ser Arg
35 40 45

<210> 1088
<211> 257
<212> PRT
<213> Homo sapiens

<400> 1088

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Ile Pro Val His Leu Val Ser Ser Ser Ser Asn Leu Glu Arg Phe Thr
1               5                   10                  15

Ser Arg Arg Ala Pro Gly Val Gly Leu Tyr Asn Leu Lys Thr Leu Leu
            20                  25                  30

Phe Phe Ser Ser Val Gln Trp Val Leu Ile Pro Thr Met Ala Ile Thr
        35                  40                  45

Gln Phe Arg Leu Phe Lys Phe Cys Thr Cys Leu Ala Thr Val Phe Ser
    50                  55                  60

Phe Leu Lys Arg Leu Ile Cys Arg Ser Gly Arg Gly Arg Lys Leu Ser
65                  70                  75                  80

Gly Asp Gln Ile Thr Leu Pro Thr Thr Val Asp Tyr Ser Ser Val Pro
                85                  90                  95

Lys Gln Thr Asp Val Glu Glu Trp Thr Ser Trp Asp Glu Asp Ala Pro
            100                 105                 110

Thr Ser Val Lys Ile Glu Gly Gly Asn Gly Asn Val Ala Thr Gln Gln
        115                 120                 125

Asn Ser Leu Glu Gln Leu Glu Pro Asp Tyr Phe Lys Asp Met Thr Pro
    130                 135                 140

Thr Ile Arg Lys Thr Gln Lys Ile Val Ile Lys Lys Arg Glu Pro Leu
145                 150                 155                 160

Asn Phe Gly Ile Pro Asp Gly Ser Thr Gly Phe Ser Ser Arg Leu Ala
                165                 170                 175

Ala Thr Gln Asp Leu Pro Phe Ile His Gln Ser Ser Glu Leu Gly Asp
            180                 185                 190

Leu Asp Thr Trp Gln Glu Asn Thr Asn Ala Trp Glu Glu Glu Glu Asp
        195                 200                 205

Ala Ala Trp Gln Ala Glu Glu Val Leu Arg Gln Gln Lys Leu Ala Asp
    210                 215                 220

Arg Glu Lys Arg Ala Ala Glu Gln Gln Arg Lys Lys Met Glu Lys Glu
225                 230                 235                 240
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145 150 155 160

Val Pro Pro Ala Glu Glu Leu Ala Phe Thr Asp Ser Leu Ile Thr Arg
165 170 175

Asn Phe Ser Asn Tyr Ser Ser Trp His Tyr Arg Ser Cys Leu Leu Pro
180 185 190

Gln Leu His Pro Gln Pro Asp Ser Gly Pro Gln Gly Arg Leu Pro Glu
195 200 205

Asp Val Leu Leu Lys Glu Leu Glu Leu Val Gln Asn Ala Ser Ser Leu
210 215 220

Thr Pro Met Thr Arg Val Pro Gly Phe Ile Thr Val Gly Ser
225 230 235

<210> 1087
<211> 79
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (59)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (78)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1087
Leu Pro Ile Gln Ile Ser Leu Glu Leu Asp Arg Cys Phe Arg Gly Ala
1 5 10 15

Ala Leu Glu Arg Gly Phe Gly Leu Cys Lys Gly Arg Lys Glu Val Gln
20 25 30

Lys Asn Gly Val Gly Gly Ser Ala Gly Arg Leu Leu Lys Cys Gly Arg
35 40 45

Trp Lys Leu Gly Gly Glu Ile Lys Gly Thr Xaa Asp Gln Leu Val Cys
50 55 60

Ser Tyr Gln Gly Asp Pro Phe Gln Ser Lys Ser His Met Xaa Val
65 70 75

Gly Leu Thr Gly Asp Ser Lys Lys Ala Thr Lys Glu Ser Gly Leu Ile
355 360 365

Ser Thr Lys Lys Arg Lys Met Val Glu Met Leu Glu Lys Lys Arg Lys
370 375 380

Lys Xaa Lys Ile Lys Thr Met Gln
385 390

<210> 1086
<211> 238
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (122)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1086
Ala Gly Thr Met His Gly Arg Leu Lys Val Lys Thr Ser Glu Glu Gln
1 5 10 15

Ala Glu Ala Lys Arg Leu Glu Arg Glu Gln Lys Leu Lys Leu Tyr Gln
20 25 30

Ser Ala Thr Gln Ala Val Phe Gln Lys Arg Gln Ala Gly Glu Leu Asp
35 40 45

Glu Ser Val Leu Glu Leu Thr Ser Gln Ile Leu Gly Ala Asn Pro Asp
50 55 60

Phe Ala Thr Leu Trp Asn Cys Arg Arg Glu Val Leu Gln Gln Leu Glu
65 70 75 80

Thr Gln Lys Ser Pro Glu Glu Leu Ala Ala Leu Val Lys Ala Glu Leu
85 90 95

Gly Phe Leu Glu Ser Cys Leu Arg Val Asn Pro Lys Ser Tyr Gly Thr
100 105 110

Trp His His Arg Cys Trp Leu Leu Gly Xaa Leu Pro Glu Pro Asn Trp
115 120 125

Thr Arg Glu Leu Glu Leu Cys Ala Arg Phe Leu Glu Val Asp Glu Arg
130 135 140

Asn Phe His Cys Trp Asp Tyr Arg Arg Phe Val Ala Thr Gln Ala Ala

His Ser Gly Thr Ile Thr Cys Leu Lys Phe Tyr Gly Asn Arg His Leu
85 90 95

Ile Ser Gly Ala Glu Asp Gly Leu Ile Cys Ile Trp Asp Ala Lys Lys
100 105 110

Trp Glu Cys Leu Lys Ser Ile Lys Ala His Lys Gly Gln Val Thr Phe
115 120 125

Leu Ser Ile His Pro Ser Gly Lys Leu Ala Leu Ser Val Gly Thr Asp
130 135 140

Lys Thr Leu Arg Thr Trp Asn Leu Val Glu Gly Arg Ser Ala Phe Ile
145 150 155 160

Lys Asn Ile Lys Gln Asn Ala His Ile Val Glu Trp Ser Pro Arg Gly
165 170 175

Glu Gln Tyr Val Val Ile Ile Gln Asn Lys Ile Asp Ile Tyr Gln Leu
180 185 190

Asp Thr Ala Ser Ile Ser Gly Thr Ile Thr Asn Glu Lys Arg Ile Ser
195 200 205

Ser Val Lys Phe Leu Ser Glu Ser Val Leu Ala Val Ala Gly Asp Glu
210 215 220

Glu Val Ile Arg Phe Phe Asp Cys Asp Ser Leu Val Cys Leu Cys Glu
225 230 235 240

Phe Lys Ala His Glu Asn Arg Val Lys Asp Met Phe Ser Phe Glu Ile
245 250 255

Pro Glu His His Val Ile Val Ser Ala Ser Ser Asp Gly Phe Ile Lys
260 265 270

Met Trp Lys Leu Lys Gln Asp Lys Lys Val Pro Pro Ser Leu Leu Cys
275 280 285

Glu Ile Asn Thr Asn Ala Arg Leu Thr Cys Leu Gly Val Trp Leu Asp
290 295 300

Lys Val Ala Asp Met Lys Glu Ser Leu Pro Pro Ala Ala Glu Pro Ser
305 310 315 320

Pro Val Ser Lys Glu Gln Ser Lys Ile Gly Lys Lys Glu Pro Gly Asp
325 330 335

Thr Val His Lys Glu Glu Lys Arg Ser Lys Pro Asn Thr Lys Lys Arg
340 345 350

Pro Arg Arg Thr Pro Val Gln Pro Asn Pro Ile Val Tyr Met Met Lys
50 55 60

Ala Phe Asp Leu Ile Val Asp Arg Pro Val Thr Leu Val Arg Glu Phe
65 70 75 80

Ile Glu Arg Gln His Ala Lys Asn Arg Tyr Tyr Tyr Tyr His Arg Gln
85 90 95

Tyr Arg Arg Val Pro Asp Ile Thr Glu Cys Lys Glu Glu Asp Ile Met
100 105 110

Cys Ile Lys Xaa Asp Gln Glu Ile Ile Thr Leu Cys Arg Ile Gly Ser
115 120 125

Lys Xaa Xaa Ser Arg Gly Lys Asp Arg Leu Pro Ala Asp Cys Ile Lys
130 135 140

Glu Xaa Glu Gln Leu Pro Arg Trp Pro Arg Leu Pro Gly Thr Xaa Ile
145 150 155 160

Arg Thr Xaa Gly Pro Thr
165

<210> 1085
<211> 392
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (386)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1085
Met Glu Leu Val Ala Gly Cys Tyr Glu Gln Val Leu Phe Gly Phe Ala
1 5 10 15

Val His Pro Glu Pro Glu Ala Cys Gly Asp His Glu Gln Trp Thr Leu
20 25 30

Val Ala Asp Phe Thr His His Ala His Thr Ala Ser Leu Ser Ala Val
35 40 45

Ala Val Asn Ser Arg Phe Val Val Thr Gly Ser Lys Asp Glu Thr Ile
50 55 60

His Ile Tyr Asp Met Lys Lys Lys Ile Glu His Gly Ala Leu Val His
65 70 75 80

Val Glu His Ser Trp
85

<210> 1084
<211> 166
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (116)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (130)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (131)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (146)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (159)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (163)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1084
Pro Pro Ser Ala Ser Ser Val Ala Gly Asp Leu Gly Arg Gly Thr Arg
1 5 10 15

Thr Glu Val Glu Ala Arg Ala Ala Arg Pro Gly Ala Glu Ser Ala Pro
20 25 30

Ala Ala Ala Met Pro Asp Ser Trp Asp Lys Asp Val Tyr Pro Glu Pro
35 40 45

<222> (58)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (60)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1082
Gln Asp Val Ser Glu Met Asp Val Xaa Phe Leu Leu Ile Gln Leu Ser
1 5 10 15

Cys Tyr Phe Ser Ser Gly Ser Cys Gly Lys Val Leu Val Trp Pro Thr
20 25 30

Glu Tyr Ser His Trp Ile Asn Met Lys Thr Ile Leu Glu Glu Leu Val
35 40 45

Gln Arg Gly His Glu Val Thr Val Val Xaa Ile Xaa Gly Phe Tyr Ser
50 55 60

Cys Gln Cys Gln
65

<210> 1083
<211> 85
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (1)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1083
Xaa Pro Pro Gly Gly Gly Arg Ser Arg Thr Ser Gly Ser Pro Gly Leu
1 5 10 15

Gln Val Arg Ala Ile Arg Leu Ala Leu Glu Gly Val Asp Val Lys Leu
20 25 30

Glu Gln Ala Ala Arg Thr Leu Gly Ala Gly Arg Trp Arg Val Phe Phe
35 40 45

Thr Ile Thr Leu Pro Leu Thr Leu Pro Gly Ile Ile Val Gly Thr Val
50 55 60

Leu Ala Phe Ala Arg Ser Leu Gly Glu Phe Gly Ala His His Leu Cys
65 70 75 80

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Leu Tyr Tyr Leu Ser Pro Leu Lys Leu Glu His Leu Ala Leu Ile Tyr
        115                 120                 125

Phe Gly Gly Leu Ser Gly Ser Phe Leu Tyr Thr Gly Gly Ile Gly Phe
    130                 135                 140

Lys Tyr Val Ala Leu Gly Asp Leu Ile Ile Leu Ile Thr Phe Gly Pro
145                 150                 155                 160

Leu Ala Val Met Phe Ala Tyr Ala Ile Gln Val Gly Ser Leu Ala Ile
                165                 170                 175

Phe Pro Leu Val Tyr Ala Ile Pro Leu Ala Leu Ser Thr Glu Ala Ile
            180                 185                 190

Leu His Ser Asn Asn Thr Arg Asp Met Glu Ser Asp Arg Glu Ala Gly
        195                 200                 205

Ile Val Thr Leu Ala Ile Leu Ile Gly Pro Thr Phe Ser Tyr Ile Leu
    210                 215                 220

Tyr Asn Thr Leu Leu Phe Leu Pro Tyr Leu Val Phe Ser Ile Leu Ala
225                 230                 235                 240

Thr His Cys Thr Ile Ser Leu Ala Leu Pro Leu Leu Thr Ile Pro Met
                245                 250                 255

Ala Phe Ser Leu Glu Arg Gln Phe Arg Ser Gln Ala Phe Asn Lys Leu
            260                 265                 270

Pro Gln Arg Thr Ala Lys Leu Asn Leu Leu Leu Gly Leu Phe Tyr Val
        275                 280                 285

Phe Gly Ile Ile Leu Ala Pro Ala Gly Ser Leu Pro Lys Ile
    290                 295                 300
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<210> 1082
<211> 68
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (9)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE

<220>
<221> SITE
<222> (55)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (59)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1080
Leu His Ile Lys Ile Leu Gln Ile Glu Lys Tyr Ile Lys Tyr Ala Met
1 5 10 15

Gly Leu Thr Phe Tyr Gln Asn Ser His Met Ile Ser Phe Ile Ser Ser
20 25 30

Gly Ser Phe Arg Val Pro Ile Ala Leu Pro Ile Phe Thr Tyr Phe Ile
35 40 45

Asn Leu His Xaa Gly Ile Xaa Ser Leu Phe Xaa Phe Phe
50 55 60

<210> 1081
<211> 302
<212> PRT
<213> Homo sapiens

<400> 1081
Ala Pro Pro Ala Leu Leu Glu Ala Glu Val Cys Leu Leu Arg Val Gly
1 5 10 15

Pro Glu Ala Trp Ser Phe Ser Ala Ser Leu Thr Pro Val Ala Leu Gly
20 25 30

Ser Ala Leu Ala Tyr Arg Ser His Gly Val Leu Asp Pro Arg Leu Leu
35 40 45

Val Gly Cys Ala Val Ala Val Leu Ala Val His Gly Ala Gly Asn Leu
50 55 60

Val Asn Thr Tyr Tyr Asp Phe Ser Lys Gly Ile Asp His Lys Lys Ser
65 70 75 80

Asp Asp Arg Thr Leu Val Asp Arg Ile Leu Glu Pro Gln Asp Val Val
85 90 95

Arg Phe Gly Val Phe Leu Tyr Thr Leu Gly Cys Val Cys Ala Ala Cys
100 105 110

Gln Gln Phe Gln Glu Glu Lys Leu Asn Lys Leu Gln Lys Leu Leu Ile
405 410 415

Leu Leu Arg Gly Leu Pro Gly Ser Gly Lys Thr Thr Leu Xaa Arg Ile
420 425 430

Leu Leu Gly Gln Asn Arg Asp Gly Ile Val Phe Ser Thr Asp Asp Tyr
435 440 445

Phe His His Gln Asp Gly Tyr Arg Tyr Asn Val Asn Gln Leu Gly Asp
450 455 460

Ala His Asp Trp Asn Gln Asn Arg Ala Lys Gln Ala Ile Asp Gln Gly
465 470 475 480

Arg Ser Pro Val Ile Ile Asp Asn Thr Asn Ile Gln Ala Trp Glu Met
485 490 495

Lys Pro Tyr Val Glu Val Ala Ile Gly Lys Gly Tyr Arg Val Glu Phe
500 505 510

His Glu Pro Glu Thr Trp Trp Lys Phe Asp Pro Glu Glu Leu Glu Lys
515 520 525

Arg Asn Lys His Gly Val Ser Arg Lys Lys Ile Ala Gln Met Leu Asp
530 535 540

Arg Tyr Glu Tyr Gln Met Ser Ile Ser Ile Val Met Asn Ser Val Glu
545 550 555 560

Pro Ser His Lys Ser Thr Gln Arg Pro Pro Pro Pro Gln Gly Arg Gln
565 570 575

Arg Trp Gly Gly Ser Leu Gly Ser His Asn Arg Val Cys Val Thr Asn
580 585 590

Asn His

<210> 1080
<211> 61
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (52)
<223> Xaa equals any of the naturally occurring L-amino acids

Ser Thr Ser Lys Ala Phe Ile Gly Pro Ile Tyr Lys Pro Pro Glu Lys
130 135 140

Lys Lys Arg Asn Glu Gly Arg Asn Glu Ala His Val Leu Asn Gly Ile
145 150 155 160

Asn Asp Arg Gly Gly Gln Lys Glu Lys Gln Lys Phe Asn Ser Glu Lys
165 170 175

Ser Glu Ile Asp Asn Glu Leu Phe Gln Phe Tyr Lys Glu Ile Glu Glu
180 185 190

Leu Glu Lys Glu Lys Asp Gly Phe Glu Asn Ser Cys Lys Glu Ser Glu
195 200 205

Pro Ser Gln Glu Gln Phe Val Pro Phe Tyr Glu Gly His Asn Asn Gly
210 215 220

Leu Leu Lys Pro Asp Glu Glu Lys Lys Asp Leu Ser Asn Lys Ala Met
225 230 235 240

Pro Ser His Cys Asp Tyr Gln Gln Asn Leu Gly Asn Glu Pro Asp Lys
245 250 255

Tyr Pro Cys Asn Gly Gln Val Ile Pro Thr Phe Cys Asp Thr Ser Phe
260 265 270

Thr Ser Phe Arg Pro Glu Trp Gln Ser Val Tyr Pro Phe Ile Val Pro
275 280 285

Tyr Gly Pro Pro Leu Pro Ser Leu Asn Tyr His Leu Asn Ile Gln Arg
290 295 300

Phe Ser Gly Pro Pro Asn Pro Pro Ser Asn Ile Phe Gln Ala Gln Asp
305 310 315 320

Asp Ser Gln Ile Gln Asn Gly Tyr Tyr Val Asn Asn Cys His Val Asn
325 330 335

Trp Asn Cys Met Thr Phe Asp Gln Asn Asn Glu Tyr Thr Asp Cys Ser
340 345 350

Glu Asn Arg Ser Ser Val His Pro Ser Gly Asn Gly Cys Ser Met Gln
355 360 365

Asp Arg Tyr Val Ser Asn Gly Phe Cys Glu Val Arg Glu Arg Cys Trp
370 375 380

Lys Asp His Cys Met Asp Lys His Asn Gly Thr Asp Arg Phe Val Asn
385 390 395 400

20 25 30

Ile Met Gly Thr Ala Gly Trp Pro Gln Ala Ser Ala Pro Leu Leu Pro
35 40 45

Cys Arg Gln Gly Leu Leu Glu Pro Cys Ala His Pro Gly Leu Leu Arg
50 55 60

Xaa Gln Pro Cys Thr Glu Ser Ala Asp Val Pro Cys Leu Xaa Thr Arg
65 70 75 80

Pro Leu Cys Pro Leu
85

<210> 1079
<211> 594
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (430)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1079
Cys Cys Leu Arg Phe Ser Phe Thr Phe Thr Glu Met Ser Tyr Gly Glu
1 5 10 15

Ile Glu Gly Lys Phe Leu Gly Pro Arg Glu Glu Val Thr Ser Glu Pro
20 25 30

Arg Cys Lys Lys Leu Lys Ser Thr Thr Glu Ser Tyr Val Phe His Asn
35 40 45

His Ser Asn Ala Asp Phe His Arg Ile Gln Glu Lys Thr Gly Asn Asp
50 55 60

Trp Val Pro Val Thr Ile Ile Asp Val Arg Gly His Ser Tyr Leu Gln
65 70 75 80

Glu Asn Lys Ile Lys Thr Thr Asp Leu His Arg Pro Leu His Asp Glu
85 90 95

Met Pro Gly Asn Arg Pro Asp Val Ile Glu Ser Ile Asp Ser Gln Val
100 105 110

Leu Gln Glu Ala Arg Pro Pro Leu Val Ser Ala Asp Asp Glu Ile Tyr
115 120 125

Phe Phe Asn Met Val Lys Leu Asp Gln Gly Ser Glu His Arg Phe
20 25 30

<210> 1077
<211> 87
<212> PRT
<213> Homo sapiens

<400> 1077
Asn Cys Pro Asn Pro His Leu His Lys Asn Leu Ser Pro Val His Lys
1 5 10 15

Ala Asp His Glu Ala Ile Ile Phe Leu Glu Gly Phe Leu Ala Cys Ser
20 25 30

Pro Val Ala Ser Ala Ala Leu Ala Leu Cys His Ser Glu Pro Lys Gly
35 40 45

Lys Val Met Glu Gln His His Ile Cys Arg Leu Ser Val Leu Phe Gly
50 55 60

Glu Gly Lys Gly Arg Glu Cys Arg Arg Met Lys Lys Phe Leu Pro Thr
65 70 75 80

Ala Ser Ile Leu Ile Phe Leu
85

<210> 1078
<211> 85
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (65)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (78)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1078
Pro Asp Gln Gly Gly Asp Glu Gly Ile Leu Ser Ser Arg Thr Cys Arg
1 5 10 15

Gly Thr Arg Gln Gly Pro His Pro Arg Gly Asp Pro Val Ala Arg His

<400> 1075
Leu Pro Phe Phe Arg Leu Ser Phe Ala Phe Val Leu Arg Gly Phe Arg
1 5 10 15

Asn Thr Ala Gln Asn Tyr Arg Glu Asn Thr Pro Ala Arg Ala Leu Ser
20 25 30

Arg Thr Arg Cys Ala Ala Ser Val Trp Leu Ala Ser Ser Ser Gln Phe
35 40 45

Pro Thr His Arg Leu Arg Ser Ser Asn Ser His Asp Ile Cys Ser Thr
50 55 60

Arg Arg Arg Ile Arg Cys Arg Val Leu Ala Arg Pro Phe Ser Ser Ala
65 70 75 80

Cys Cys Xaa His Arg Cys Val Thr Arg Asn Arg Arg Ala Glu Gln His
85 90 95

Asp Val Arg Phe Gly Glu Leu His Gln Pro Tyr Pro Gln Ala Gly Ala
100 105 110

Ala Gly Val Ser Arg Gly Arg Gly Glu Ala Ala Val Gly Asp Arg Trp
115 120 125

Glu Val Gly Arg Pro Gly Leu Gly Gly Ile Leu Gly Ala Gly Glu Glu
130 135 140

Met Arg Ala Pro Glu Arg Pro Arg Val Arg Arg Arg Arg Leu Glu Pro
145 150 155 160

Ser Arg Cys Cys Gly Pro Xaa Gly Pro Phe His Phe Ala Cys Lys Thr
165 170 175

Gln Ile Lys Thr Gln Cys Asp Tyr Ser Glu Leu Phe Cys Leu Lys Lys
180 185 190

Asn Val Arg Ser
195

<210> 1076
<211> 31
<212> PRT
<213> Homo sapiens

<400> 1076
Gln Leu Thr Leu Asn Ile Ser Leu Leu Leu Ser Leu Ser Leu Ser Phe
1 5 10 15

Ala Asp Asp Val Ile Lys Met Xaa Asp Met Gly Ser Ala Cys Arg Thr
245 250 255

Ser Gly Gln Thr Phe Ala Asn Ser Asn Ser Ser Arg Ser His Ala Cys
260 265 270

Phe Gln Ile Ile Leu Arg Ala Lys Gly Arg Met His Gly Lys Phe Ser
275 280 285

Leu Val Asp Leu Ala Gly Asn Glu Arg Gly Ala Xaa Thr Ser Ser Ala
290 295 300

Asp Arg Gln Thr Arg Met Glu Gly Ala Glu Ile Asn Lys Ser Leu Leu
305 310 315 320

Ala Leu Lys Glu Cys Ile Arg Ala Leu Gly Gln Asn Lys Ala His Thr
325 330 335

Pro Phe Arg Glu Ser Lys Leu Thr Gln Val Leu Arg Asp Ser Phe Ile
340 345 350

Gly Glu Asn Ser Arg Thr Cys Met Ile Ala Thr Ile Ser Pro Gly Ile
355 360 365

Ser Ser Cys Xaa Ile Tyr Phe Lys His Pro Glu Ile Cys Arg Gln Gly
370 375 380

Gln Gly Ala Glu Pro Pro Gln Trp Ala Gln Trp Arg Ala Val Asp Ser
385 390 395 400

Asn Gly Asn Arg Arg Asp Gly Ser Leu Leu
405 410

<210> 1075
<211> 196
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (83)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (167)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (372)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1074
Arg Asn Lys Arg Glu Glu Lys Lys Ala Gln Asn Ser Glu Xaa Arg Met
1   5   10   15

Lys Arg Ala Gln Xaa Tyr Asp Ser Ser Phe Pro Asn Trp Glu Phe Ala
            20   25   30

Arg Met Ile Lys Glu Phe Arg Ala Thr Leu Glu Cys His Pro Leu Thr
        35   40   45

Met Thr Asp Pro Ile Glu Glu His Arg Ile Cys Val Cys Val Arg Lys
    50   55   60

Arg Pro Leu Asn Lys Gln Glu Leu Ala Lys Lys Glu Ile Asp Val Ile
65   70   75   80

Ser Ile Pro Ser Lys Cys Leu Leu Leu Val His Glu Pro Lys Leu Lys
                85   90   95

Val Asp Leu Thr Lys Tyr Leu Glu Asn Gln Ala Phe Cys Phe Asp Phe
            100   105   110

Ala Phe Asp Glu Thr Ala Ser Asn Glu Val Val Tyr Arg Phe Thr Ala
        115   120   125

Arg Pro Leu Val Gln Thr Ile Phe Glu Gly Gly Lys Ala Thr Cys Phe
    130   135   140

Ala Tyr Gly Gln Thr Gly Ser Gly Lys Thr His Thr Met Gly Gly Asp
145   150   155   160

Leu Ser Gly Lys Ala Gln Asn Ala Ser Lys Gly Ile Tyr Ala Met Ala
                165   170   175

Xaa Arg Asp Val Phe Leu Leu Lys Asn Gln Pro Cys Tyr Arg Lys Leu
            180   185   190

Gly Leu Glu Val Tyr Val Thr Phe Phe Glu Ile Tyr Asn Gly Lys Leu
        195   200   205

Phe Asp Leu Leu Asn Lys Lys Ala Lys Leu Arg Val Leu Glu Asp Gly
    210   215   220

Lys Gln Gln Val Gln Val Val Gly Leu Gln Glu His Leu Val Asn Ser
225   230   235   240

35 40 45

Gly Asp Phe Arg Leu Lys Ala Arg Gly Arg Ile Leu Arg Phe Asp Gly
50 55 60

Trp Thr Lys Val Met Pro Ala Leu Arg Lys Gly Asp Glu Asp Arg Ile
65 70 75 80

Leu Pro Ala Val Asn Lys Gly Asp Ala Leu Thr Leu Val Glu Leu Thr
85 90 95

Pro Ala Gln His Phe Thr Lys Pro Pro Ala Arg Phe Ser Glu Ala Ser
100 105 110

Leu Val Lys Glu Leu Glu Lys Arg Gly Ile Gly Arg Pro Ser Xaa Tyr
115 120 125

Ala Ser Ile Ile Ser Thr Ile
130 135

<210> 1074
<211> 410
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (14)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (21)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (177)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (248)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (300)
<223> Xaa equals any of the naturally occurring L-amino acids

1 5 10 15

Val Ser Gln Ser Leu Phe Phe Trp Leu Gly Phe Tyr Ile Lys Leu Ser
20 25 30

Ile Leu Ser Asn Asp Leu Ser Leu Leu Pro Phe Leu Leu His Ile Pro
35 40 45

Ile Lys Thr Phe Phe Val Phe Asn Ser Cys His Leu Asp Ser Arg Thr
50 55 60

Ser Ser Ile Pro His Val Cys Ser Leu Leu Cys Gln Pro Arg Pro Phe
65 70 75 80

Leu Tyr Pro Pro Ala Trp Xaa Cys Cys Pro Leu Cys Ser Xaa Leu Thr
85 90 95

Arg Tyr Lys Glu His Glu Asp Gly Tyr Met Arg Leu Gln Leu Val Arg
100 105 110

Xaa Glu Ser Val Glu Leu Thr Gln Gln Leu Leu Arg Gln Pro Gln Glu
115 120 125

Gly Ser Gly Trp Glu Arg Arg
130 135

<210> 1073
<211> 135
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (48)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (127)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1073
Pro Ser Asp Val Asn Val Met Ala Glu Ser Leu Lys Asp Met Glu Ala
1 5 10 15

Asp Ala Gln Lys Leu Tyr Gln Leu Ile Trp Arg Gln Phe Val Ala Cys
20 25 30

Gln Met Thr Pro Ala Lys Tyr Asp Ser Thr Thr Leu Thr Val Gly Xaa

Thr Asn Ile Thr Pro Lys His Asn Met Lys Ala Phe Leu Asp Glu Leu
85 90 95

Lys Ala Glu Asn Ile Lys Lys Phe Leu Tyr Asn Phe Thr Gln Ile Pro
100 105 110

His Leu Ala Gly Thr Glu Gln Asn Phe Gln Leu Ala Lys Gln Ile Gln
115 120 125

Ser Gln Trp Lys Glu Phe Gly Leu Asp Ser Val Glu Leu Ala His Tyr
130 135 140

Asp Val Leu Leu Ser Tyr Pro Asn Lys Thr His Pro Asn Tyr Ile Ser
145 150 155 160

Ile Ile Asn Glu Asp Gly Asn Glu Ile Phe Asn Thr Ser Leu Phe Glu
165 170 175

Pro Pro Xaa Xaa Gly Tyr Glu Asn Gly Ser Asp Ile Xaa Pro Pro Phe
180 185 190

Ser Ala Phe Ser Pro Gln Gly Met Pro Xaa Gly Asp Leu Val Tyr Xaa
195 200 205

Asn

<210> 1072
<211> 135
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (87)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (94)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (113)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1072
Leu Gln Gly Leu Leu Ile Asn Pro Leu Thr Leu Ser Pro Ser Asn Thr

Phe

<210> 1071
<211> 209
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (179)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (180)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (189)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (202)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (208)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1071
Glu Arg Leu Tyr Pro Ala Val Val Val Gly Gly Arg Ala Val Glu Gln
1 5 10 15

Gln His Arg Arg Gly Ser Arg Glu Ala Gly Ser Ala Arg Ala Glu Met
20 25 30

Trp Asn Leu Leu His Glu Thr Asp Ser Ala Val Ala Thr Ala Arg Arg
35 40 45

Pro Arg Trp Leu Cys Ala Gly Ala Leu Val Leu Ala Gly Gly Phe Phe
50 55 60

Leu Leu Gly Phe Leu Phe Gly Trp Phe Ile Lys Ser Ser Asn Glu Ala
65 70 75 80

Thr Lys Trp Ser Ser Ile Pro Ala Ser Lys Pro Arg Arg Gly Thr Ala
100 105 110

Pro Thr Arg Thr Ala Ala Pro Pro Trp Pro Gly Gly Val Ser Val Arg
115 120 125

Thr Gly Pro Glu Lys Arg Ser Ser Thr Arg Pro Pro Ala Glu Met Glu
130 135 140

Pro Gly Lys Gly Glu Gln Ala Ser Ser Ser Glu Ser Asp Pro Glu Gly
145 150 155 160

Pro Ile Ala Ala Gln Met Leu Ser Phe Val Met Asp Asp Pro Asp Phe
165 170 175

Glu Ser Glu Gly Ser Asp Thr Gln Arg Arg Ala Asp Asp Phe Pro Val
180 185 190

Arg Asp Asp Pro Ser Asp Val Thr Asp Glu Asp Glu Gly Pro Ala Glu
195 200 205

Pro Pro Pro Pro Pro Lys Leu Pro Leu Pro Ala Phe Arg Leu Lys Asn
210 215 220

Asp Ser Asp Leu Phe Gly Leu Gly Leu Glu Glu Ala Gly Pro Lys Glu
225 230 235 240

Ser Ser Glu Glu Gly Lys Glu Gly Lys Thr Pro Ser Lys Glu Lys Lys
245 250 255

Lys Lys Lys Lys Lys Gly Lys Glu Glu Glu Glu Lys Ala Ala Lys Lys
260 265 270

Lys Ser Lys His Lys Lys Ser Lys Asp Lys Glu Glu Gly Lys Glu Glu
275 280 285

Arg Arg Arg Arg Xaa Gln Arg Pro Pro Arg Ser Arg Glu Arg Thr Ala
290 295 300

Ala Asp Glu Leu Glu Ala Phe Leu Gly Gly Gly Ala Arg Ala Ala Ala
305 310 315 320

Thr Leu Gly Val Ala Thr Thr Arg Ser Ser Arg Pro Ala Trp Ala Val
325 330 335

Ala Ala Leu Gly Arg Gly Ala Cys Leu Ser Leu Pro Gly Glu Ala Phe
340 345 350

Ala Ser Val Pro Ser Pro Leu Pro Leu Pro Arg Gly Cys Arg Val Arg
355 360 365

<210> 1070
<211> 369
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (27)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (29)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (36)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (41)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (293)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1070
```
Asp Arg Ser Phe Leu Glu Asp Thr Thr Pro Ala Arg Asp Glu Lys Lys
  1               5                  10                  15

Val Gly Ala Lys Ala Ala Gln Gln Asp Ser Xaa Ser Xaa Gly Glu Ala
             20                  25                  30

Leu Gly Gly Xaa Pro Met Val Ala Xaa Phe Gln Asp Asp Val Asp Leu
         35                  40                  45

Glu Asp Gln Pro Arg Gly Ser Pro Pro Leu Pro Ala Gly Pro Val Pro
     50                  55                  60

Ser Gln Asp Ile Thr Leu Ser Ser Glu Glu Glu Ala Glu Val Ala Ala
 65                  70                  75                  80

Pro Thr Lys Gly Pro Ala Pro Ala Pro Gln Gln Cys Ser Glu Pro Glu
                 85                  90                  95
```

<210> 1068
<211> 59
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (23)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1068
Leu Leu Tyr Gln Ser Ile Glu Asp Ser Ser Tyr Leu Leu Pro Val Ala
1 5 10 15

Gln Phe Arg Phe Trp Glu Xaa Ala Glu Gln Val Lys His Arg Lys Leu
20 25 30

Lys Arg Arg Asn Pro His Phe Gly Pro Ile Phe Leu Leu Asp Tyr Phe
35 40 45

Leu Ile Ser Ile Leu Pro Ile Val Leu Met Phe
50 55

<210> 1069
<211> 55
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (19)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1069
Cys Leu Ala Val Arg Arg His Glu Leu Arg Thr Val His His Gly Ser
1 5 10 15

Glu Arg Xaa Arg Asn Pro Ser Pro Ile Arg Thr Met Thr Asp Ile Leu
20 25 30

Ser Arg Gly Pro Lys Ser Met Ile Ser Leu Ala Gly Gly Leu Pro Asn
35 40 45

Pro Asn Met Phe Pro Phe Lys
50 55

20 25 30

Glu Gln Asn Val Ala Glu Leu Leu Gln Phe Leu Leu Val Lys Asp Gln
35 40 45

Ser Lys Tyr Pro Ile Arg Glu Ser Glu Met Arg Glu Tyr Ile Val Lys
50 55 60

Glu Tyr Arg Asn Gln Phe Pro Glu Ile Leu Arg Arg Ala Ala Ala His
65 70 75 80

Leu Glu Cys Ile Phe Arg Phe Glu Leu Arg Glu Leu Asp Pro Glu Ala
85 90 95

His Thr Tyr Ile Leu Leu Asn Lys Leu Gly Pro Val Pro Phe Glu Gly
100 105 110

Leu Glu Glu Ser Pro Asn Gly Pro Lys Met Gly Leu Leu Met Met Ile
115 120 125

Leu Xaa Gln Ile Phe Leu Asn Gly Asn Gln Ala Lys Glu Ala
130 135 140

<210> 1067
<211> 111
<212> PRT
<213> Homo sapiens

<400> 1067
Thr Arg Ser Ala Gly Ser Arg Gly Gly Ala Trp Thr Pro Ala Trp Gln
1 5 10 15

Val Pro Pro Arg Glu Arg Gly Ser Arg Cys Ile Ser Ala Ala Phe Ile
20 25 30

Thr Asp Leu Gly Leu His Gln Gly Thr Cys Arg Thr Ala Leu Lys Thr
35 40 45

Ala Glu Ser Glu Glu Pro Ser Leu Gly Pro Gly Arg Pro Ala Val Gln
50 55 60

Leu Ala Ser Arg Ile Pro Leu Pro Ala Pro Ala Asp Asp Leu Phe Trp
65 70 75 80

Arg Val Glu Asn Val Leu Gly Phe Lys Val Gln Ser Gly Phe Leu Ser
85 90 95

Ile His Tyr Ser Cys Leu His Ser Thr Asn Lys Ser Trp Glu Arg
100 105 110

```
            100                   105                   110

Gln Arg Leu Gln Ile Gln Gly Leu Gln Glu Ser Leu Gly Glu Gly Ile
        115                 120                 125

Arg Val Ala Thr Phe Ser Lys Ser Val Lys Val Glu His Ser Arg Ala
    130                 135                 140

Leu Leu Leu Val Thr Glu Asp Ile Leu Lys Leu Asn Ala Ser Ser Lys
145                 150                 155                 160

Ser Lys Leu Gly Ser Trp Ala Glu Thr Gly His Pro Asp Asp Glu Phe
                165                 170                 175

Glu Ser Glu Thr Pro Asn Phe Lys Tyr Ala Gln Leu Asp Val Ser Tyr
            180                 185                 190

Ser Gly Leu Val Asn Asp Asn Trp Lys Arg Gly Lys Asn Glu Arg Ser
        195                 200                 205

Leu His Tyr Ile Lys Arg Cys Ile Glu Asp Leu Pro Ala Ala Cys Met
    210                 215                 220

Leu Gly Pro Glu Glu Ile Pro Val Ser Trp Val Thr Met Gly Pro Phe
225                 230                 235                 240

Leu
```

<210> 1066
<211> 142
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (7)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (130)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1066

```
Glu Val Leu Arg Asp Cys Xaa Ser Pro Asn Ser Ile Ser Ile Met Gly
  1               5                  10                  15

Leu Asn Thr Ser Arg Val Ala Ile Thr Leu Lys Pro Gln Asp Pro Met
```

Pro Pro Ala Cys Thr Arg Ala Xaa Arg Arg Glu Val Glu Arg Val Val
210 215 220

Val Asp Ala Leu Ser Gly Leu Lys Gly Asp Leu Ala Gly Arg Tyr Tyr
225 230 235 240

Arg Leu Ser Glu Met Thr Glu Ala Glu Gln Gln Gln Leu Ile Asp Asp
245 250 255

His Phe Leu Phe Asp Lys Pro Val Ser Pro Leu Leu Thr Ala Ala Gly
260 265 270

Met Ala Arg Asp Trp Pro Asp Ala Arg Gly Ile Trp His Asn Asn Glu
275 280 285

Lys Ser Phe Leu Ile Trp Val Asn Glu Glu Asp His Thr Arg Val Ile
290 295 300

Ser Met Glu Lys Gly Gly Asn Met Lys Arg Xaa Phe Glu Arg Ser Ala
305 310 315 320

Glu Ala Ser Lys Arg Xaa Arg Asp Tyr Val Gly Asp
325 330

<210> 1065
<211> 241
<212> PRT
<213> Homo sapiens

<400> 1065
Ser Phe Phe Phe Lys Val Ser Arg Ser Glu Ala Ser His Arg Met Ile
1 5 10 15

Leu Leu Asn Asn Ser His Lys Leu Leu Ala Leu Tyr Lys Ser Leu Ala
20 25 30

Arg Ser Ile Pro Glu Ser Leu Lys Val Tyr Gly Ser Val Tyr His Ile
35 40 45

Asn His Gly Asn Pro Phe Asn Met Glu Val Leu Val Asp Ser Trp Pro
50 55 60

Glu Tyr Gln Met Val Ile Ile Arg Pro Gln Lys Gln Glu Met Thr Asp
65 70 75 80

Asp Met Asp Ser Tyr Thr Asn Val Tyr Arg Met Phe Ser Lys Glu Pro
85 90 95

Gln Lys Ser Glu Glu Val Leu Lys Asn Cys Glu Ile Val Asn Trp Lys

<220>
<221> SITE
<222> (315)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (326)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1064
Leu Arg Pro Ser Val Tyr Pro Val Ala Ser Ser Leu Pro Val Pro Asp
1 5 10 15

Leu Ile Leu Arg Gln Arg Leu Leu Gln Asp Pro Val Ala Arg Pro Gln
20 25 30

Ala Met Ala Gly Pro Phe Ser Arg Leu Leu Ser Ala Arg Pro Gly Leu
35 40 45

Arg Leu Leu Ala Leu Ala Gly Ala Gly Ser Leu Ala Ala Gly Phe Leu
50 55 60

Leu Arg Pro Glu Pro Val Arg Ala Ala Ser Glu Arg Arg Arg Leu Tyr
65 70 75 80

Pro Pro Ser Ala Glu Tyr Pro Asp Leu Arg Lys His Asn Asn Cys Met
85 90 95

Ala Ser His Leu Thr Pro Ala Val Tyr Ala Arg Leu Cys Asp Lys Thr
100 105 110

Thr Pro Thr Gly Trp Thr Leu Asp Gln Cys Ile Gln Thr Gly Val Asp
115 120 125

Asn Pro Gly His Pro Phe Ile Lys Thr Val Gly Met Val Ala Gly Asp
130 135 140

Glu Glu Thr Tyr Glu Val Phe Ala Asp Leu Phe Asp Pro Val Ile Gln
145 150 155 160

Glu Arg His Asn Gly Tyr Asp Pro Arg Thr Met Lys His Thr Thr Asp
165 170 175

Leu Asp Ala Ser Lys Ile Arg Ser Gly Tyr Phe Asp Glu Arg Tyr Val
180 185 190

Leu Ser Ser Arg Val Arg Thr Gly Arg Ser Ile Arg Gly Leu Ser Leu
195 200 205

Gln Leu Gly Ile Ser Ala Asp Tyr Ile Gly Gly Ser His Tyr Val Ile
20 25 30

Gln Pro His Asp Asp Thr Glu Asp Ser Met Asn Asp His Glu Asp Thr
35 40 45

Asn Gly Ser Lys Glu Ser Phe Arg Glu Gln Asp Ile Tyr Leu Pro Ile
50 55 60

Ala Asn Val Ala Arg Ile Met Lys Asn Ala Ile Pro Gln Thr Gly Lys
65 70 75 80

Ile Ala Lys Asp Ala Lys Glu Cys Val Gln Glu Cys Val Ser Glu Phe
85 90 95

Ile Ser Phe Ile Thr Ser Glu Ala Ser Glu Arg Cys His Gln Glu Lys
100 105 110

Arg Lys Thr Ile Asn Gly Glu Asp Ile Leu Phe Ala Met Ser Thr Leu
115 120 125

Gly Phe Asp Ser Tyr Val Glu Pro Leu Lys Leu Tyr Leu Gln Lys Phe
130 135 140

Arg Glu Ala Met Lys Gly Glu Lys Gly Ile Gly Gly Ala Val Thr Ala
145 150 155 160

Thr Asp Gly Leu Ser Glu Glu Leu Thr Glu Glu Ala Phe Thr Asn Gln
165 170 175

Leu Pro Ala Gly Leu Ile Thr Thr Asp Gly Gln Gln Gln Asn Val Met
180 185 190

Val Tyr Thr Thr Ser Tyr Gln Gln Ile Ser Gly Val Gln Gln Ile Gln
195 200 205

Phe Ser
210

<210> 1064
<211> 332
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (216)
<223> Xaa equals any of the naturally occurring L-amino acids

Lys Glu Ser Lys Phe Arg Arg Glu Met Glu Lys Leu Arg Asn Gln Gln
180 185 190

Ser Arg Asp Leu Ser Leu Glu Val Asp Arg Asp Arg Asp Leu Leu Ile
195 200 205

Gln Gln Thr Met Arg Gln Leu Asn Asn His Phe Gly Arg Arg Cys Ala
210 215 220

Thr Thr Pro Met Ala Val His Arg Val Lys Val Thr Phe Lys Asp Glu
225 230 235 240

Pro Gly Xaa Gly Ser Gly Val Ala Arg Ser Phe Tyr Thr Ala Ile Ala
245 250 255

Gln Ala Phe Leu Ser Asn Glu Lys Leu Pro Asn Leu Glu Cys Ile Pro
260 265 270

Lys Lys Lys Phe Xaa Pro Pro Gln Lys Pro Lys Lys Lys Gly Pro Thr
275 280 285

Pro Asn His Gln Arg Val Phe
290 295

<210> 1062
<211> 35
<212> PRT
<213> Homo sapiens

<400> 1062
Gly Glu Glu His Ile Pro Gln Glu Ala Pro Gln Gly Ala Glu Thr Ala
1 5 10 15

Leu Ile Pro Ala Asp Ile Thr Glu Lys Gln Gln Ser Leu Phe Asn Phe
20 25 30

Val Thr Met
35

<210> 1063
<211> 210
<212> PRT
<213> Homo sapiens

<400> 1063
Gln Tyr Phe Met Thr Met Asp Gly Asp Ser Ser Thr Thr Asp Ala Ser
1 5 10 15

<210> 1061
<211> 295
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (243)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (277)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1061
```
Ala Glu Ala Ile Pro Leu Ala Asp Gln Pro His Leu Leu Gln Pro Asn
  1               5                  10                  15

Ala Arg Lys Glu Asp Leu Phe Gly Arg Pro Ser Gln Gly Leu Tyr Ser
             20                  25                  30

Ser Ser Ala Ser Ser Gly Lys Cys Leu Met Glu Val Thr Val Asp Arg
         35                  40                  45

Asn Cys Leu Glu Val Leu Pro Thr Lys Met Ser Tyr Ala Ala Asn Leu
     50                  55                  60

Lys Asn Val Met Asn Met Gln Asn Arg Gln Lys Lys Glu Gly Glu Glu
 65                  70                  75                  80

Gln Pro Val Leu Pro Glu Glu Thr Glu Ser Ser Lys Pro Gly Pro Ser
                 85                  90                  95

Ala His Asp Leu Ala Ala Gln Leu Lys Ser Ser Leu Leu Ala Glu Ile
            100                 105                 110

Gly Leu Thr Glu Ser Glu Gly Pro Pro Leu Thr Ser Phe Arg Pro Gln
        115                 120                 125

Cys Ser Phe Met Gly Met Val Ile Ser His Asp Met Leu Leu Gly Arg
    130                 135                 140

Trp Arg Leu Ser Leu Glu Leu Phe Gly Arg Val Phe Met Glu Asp Val
145                 150                 155                 160

Gly Ala Glu Pro Gly Ser Ile Leu Thr Glu Leu Gly Gly Phe Glu Val
                165                 170                 175
```

100 105 110

Val Pro Gly Gly Tyr Leu Ala Leu Thr Glu Cys Phe Glu Ile Met Xaa
115 120 125

Val Asp Phe Asn Asn Leu Gln Glu Leu Lys Ser Leu Ala Thr Lys Lys
130 135 140

Pro Gly Lys Ile Gly Ile Pro Val Ile Lys Glu Gly Ile Leu Asp Ala
145 150 155 160

Val Val Val Trp Phe Val Leu Gln Leu Asp Asp Glu His Ser Leu Ser
165 170 175

Thr Ser Pro Asn Glu Glu Thr Cys Trp Glu Gln Ala Val Tyr Pro Val
180 185 190

His Asp Leu Ala Asp Tyr Arg Ile Lys Arg Gly Asp Xaa
195 200 205

<210> 1060
<211> 92
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (72)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1060
Pro Val Lys Val Trp Glu Gly Leu Arg Glu Lys Arg Ser Val Phe Ser
1 5 10 15

Ser Gly Ser Gly Ser Cys Lys Leu His Leu Pro Gly Ala Leu Pro Leu
20 25 30

Leu Tyr Pro Phe Ala Val Cys Pro Pro Pro Pro Gly Ser Trp Ser Pro
35 40 45

Ser Cys Ser Asn Ser Phe Cys Ser Tyr Ser Arg Gly Leu Leu Gly Leu
50 55 60

Leu Ser Pro Val Arg Leu Gly Xaa Ala Leu Gly Ser Trp Val Ser Ser
65 70 75 80

Thr Asp His Ala Arg Pro Leu Arg Pro Gln Ile Ile
85 90

<400> 1058
Asp Glu Asp Asn Glu Lys Glu Lys Arg Asp Ser Leu Gly Asn Glu Glu
1 5 10 15

Ser Val Asp Lys Thr Ala Cys Glu Cys Val Arg Ser Pro Arg Glu Ser
20 25 30

Leu Asp Asp Leu Phe Gln Ile Cys Ser Pro Cys Ala Ile Ala Ser Gly
35 40 45

Leu Arg Xaa Thr Trp Leu Asn
50 55

<210> 1059
<211> 205
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (128)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (205)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1059
Arg Val Ser Leu Val Val Thr Glu Thr Val Asp Ala Gly Leu Phe Gly
1 5 10 15

Glu Gly Ile Val Glu Ser Leu Ile His Ala Trp Glu His Leu Leu Leu
20 25 30

Gln Pro Lys Thr Lys Gly Glu Ser Ala Asn Cys Glu Lys Tyr Gly Lys
35 40 45

Val Ile Pro Ala Ser Ala Val Ile Phe Gly Met Ala Val Glu Cys Ala
50 55 60

Glu Ile Arg Arg His His Arg Val Gly Ile Lys Asp Ile Ala Gly Ile
65 70 75 80

His Leu Pro Thr Asn Val Lys Phe Gln Ser Pro Ala Tyr Ser Ser Val
85 90 95

Asp Thr Glu Glu Thr Ile Glu Pro Tyr Thr Thr Glu Lys Met Ser Arg

<400> 1057

```
Ser Leu Pro Trp Arg Val Pro Arg Ser Met Glu Thr Phe Asp Pro Thr
 1               5                  10                  15

Glu Leu Pro Glu Leu Leu Lys Leu Tyr Tyr Arg Arg Leu Phe Pro Tyr
            20                  25                  30

Ser Gln Tyr Tyr Arg Trp Leu Asn Tyr Gly Gly Val Ile Lys Asn Tyr
        35                  40                  45

Phe Gln His Arg Glu Phe Ser Phe Thr Leu Lys Asp Asp Ile Tyr Ile
    50                  55                  60

Arg Tyr Gln Ser Phe Asn Asn Gln Ser Asp Leu Glu Lys Glu Met Gln
65                  70                  75                  80

Lys Met Asn Pro Tyr Lys Ile Asp Ile Gly Ala Val Tyr Ser His Arg
                85                  90                  95

Pro Asn Gln His Asn Thr Val Lys Leu Gly Ala Phe Gln Ala Gln Glu
            100                 105                 110

Lys Glu Leu Val Phe Asp Ile Asp Met Thr Asp Tyr Asp Asp Val Arg
        115                 120                 125

Arg Cys Cys Ser Ser Ala Asp Ile Cys Pro Lys Cys Trp Thr Leu Met
    130                 135                 140

Thr Met Ala Ile Arg Ile Ile Asp Arg Ala Leu Lys Glu Asp Phe Gly
145                 150                 155                 160

Phe Lys His Arg Leu Trp Val Tyr Ser Gly Arg Arg Gly Val His Cys
                165                 170                 175

Trp Val Cys Asp Glu Ser Val Arg Asn Cys Leu Leu Gln Tyr Val Xaa
            180                 185                 190

Gly
```

<210> 1058
<211> 55
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (51)
<223> Xaa equals any of the naturally occurring L-amino acids

Ala Leu Lys Asp Trp Asp Glu Val Leu Lys Phe Gln Gln Asp Leu Val
130 135 140

Asn Ala Gln His Phe Asp Ala Ala Tyr Ile Phe Arg Lys Leu Arg Leu
145 150 155 160

Asp Arg Ala Phe His Phe Thr Ala Met Pro Lys Leu Leu Ser Tyr Arg
165 170 175

Met Lys Lys Lys Ile His Arg Ala Glu Val Thr Glu Glu Phe Lys Asp
180 185 190

Pro Ser Asp Arg Val Met Lys Leu Ile Thr Ser Asp Xaa Leu Xaa Glu
195 200 205

Met Leu Asn Gly His Asp His Tyr Gln Asn Met Asn Met
210 215 220

<210> 1056
<211> 59
<212> PRT
<213> Homo sapiens

<400> 1056
Lys Ala Val Arg Ser Met Leu Leu Ser Ser Leu Arg Glu Asn Phe Leu
1 5 10 15

Asn Asn Thr Arg Lys Arg Lys Ile Gly Leu Phe Ser Leu Leu Val Leu
20 25 30

Ser Ile Leu Ser Ser Leu Gln Gly Arg Val Ala Lys Leu Trp Gly Leu
35 40 45

Asn Pro Glu Gly Gly Leu Ser Gly His Gln Thr
50 55

<210> 1057
<211> 193
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (192)
<223> Xaa equals any of the naturally occurring L-amino acids

His Ala Ser Xaa Arg Ser Pro Tyr Pro Ala Phe Val Pro Ala Val Pro
20 25 30

Lys Ser Leu Ala Arg Ile Leu His Leu Gly Lys Lys Val Leu Asn Ala
35 40 45

Asn Val Thr Pro
50

<210> 1055
<211> 221
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (205)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (207)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1055
Arg Arg Gly Phe Gly Gly Val Arg Ala Ser Glu Ala Cys Gly Leu Arg
1 5 10 15

Arg Arg Ala Gly Phe Gly Gly Val Arg Ala Ser Gly Ala Met Gly Thr
20 25 30

Pro Pro Gly Leu Gln Thr Asp Cys Glu Ala Leu Leu Ser Arg Phe Gln
35 40 45

Glu Thr Asp Ser Val Arg Phe Glu Asp Phe Thr Glu Leu Trp Arg Asn
50 55 60

Met Lys Phe Gly Thr Ile Phe Cys Gly Arg Met Arg Asn Leu Glu Lys
65 70 75 80

Asn Met Phe Thr Lys Glu Ala Leu Ala Leu Ala Trp Arg Tyr Phe Leu
85 90 95

Pro Pro Tyr Thr Phe Gln Ile Arg Val Gly Ala Leu Tyr Leu Leu Tyr
100 105 110

Gly Leu Tyr Asn Thr Gln Leu Cys Gln Pro Lys Gln Lys Ile Arg Val
115 120 125

```
Leu Val Leu Gln Thr Gly Ala Leu Val Leu Ser Asp Asn Gly Ile Cys
            580                 585                 590

Cys Ile Asp Glu Phe Asp Lys Met Asn Glu Ser Thr Arg Ser Val Leu
        595                 600                 605

His Glu Val Met Glu Gln Gln Thr Leu Ser Ile Ala Lys Ala Gly Ile
    610                 615                 620

Ile Cys Gln Leu Asn Ala Arg Thr Ser Val Leu Ala Ala Ala Asn Pro
625                 630                 635                 640

Ile Glu Ser Gln Trp Asn Pro Lys Lys Thr Thr Ile Glu Asn Ile Gln
                645                 650                 655

Leu Pro His Thr Leu Leu Ser Arg Phe Asp Leu Ile Phe Leu Met Leu
            660                 665                 670

Asp Pro Gln Asp Glu Ala Tyr Xaa Gln Ala Ser Gly Ser Pro Pro Gly
        675                 680                 685

Arg Thr Val Leu Pro Glu Arg Gly Ala Gly Arg Gly Gly Ala Pro Gly
    690                 695                 700

His Gly Gly Ala Lys Gly Leu His Cys Leu Arg Ala Gln His His His
705                 710                 715                 720

Ala Ala Ala Lys



<210> 1054
<211> 52
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (14)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (20)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1054
Leu Leu Cys Phe Tyr Glu Pro Arg Cys Ser Arg Lys Trp Xaa Gln Arg
  1               5                  10                  15
```

Thr Ile Ser Gly Met Val Ile Arg Thr Ser Gln Leu Ile Pro Glu Met
305 310 315 320

Gln Glu Ala Phe Phe Gln Cys Gln Val Cys Ala His Thr Thr Arg Val
325 330 335

Glu Met Asp Arg Gly Arg Ile Ala Glu Pro Ser Val Cys Gly Arg Cys
340 345 350

His Thr Thr His Ser Met Ala Leu Ile His Asn Arg Ser Leu Phe Ser
355 360 365

Asp Lys Gln Met Ile Lys Leu Gln Glu Ser Pro Glu Asp Met Pro Ala
370 375 380

Gly Gln Thr Pro His Thr Val Ile Leu Phe Ala His Asn Asp Leu Val
385 390 395 400

Asp Lys Val Gln Pro Gly Asp Arg Val Asn Val Thr Gly Ile Tyr Arg
405 410 415

Ala Val Pro Ile Arg Val Asn Pro Arg Val Ser Asn Val Lys Ser Val
420 425 430

Tyr Lys Thr His Ile Asp Val Ile His Tyr Arg Lys Thr Asp Ala Lys
435 440 445

Arg Leu His Gly Leu Asp Glu Glu Ala Glu Gln Lys Leu Phe Ser Glu
450 455 460

Lys Arg Val Glu Leu Leu Lys Glu Leu Ser Arg Lys Pro Asp Ile Tyr
465 470 475 480

Glu Arg Leu Ala Ser Ala Leu Ala Pro Ser Ile Tyr Glu His Glu Asp
485 490 495

Ile Lys Lys Gly Ile Leu Leu Gln Leu Phe Gly Gly Thr Arg Lys Asp
500 505 510

Phe Ser His Thr Gly Arg Gly Lys Phe Arg Ala Glu Ile Asn Ile Leu
515 520 525

Leu Cys Gly Asp Pro Gly Thr Ser Lys Ser Gln Leu Leu Gln Tyr Val
530 535 540

Tyr Asn Leu Val Pro Arg Gly Gln Tyr Thr Ser Gly Lys Gly Ser Ser
545 550 555 560

Ala Val Gly Leu Thr Ala Tyr Val Met Lys Asp Pro Glu Thr Arg Gln
565 570 575

Gly Ser Arg Arg Gly Arg Ala Thr Pro Ala Gln Thr Pro Arg Ser Glu
35 40 45

Asp Ala Arg Ser Ser Pro Ser Gln Arg Arg Arg Gly Glu Asp Ser Thr
50 55 60

Ser Thr Gly Glu Leu Gln Pro Met Pro Thr Ser Pro Gly Val Asp Leu
65 70 75 80

Gln Ser Pro Ala Ala Gln Xaa Val Leu Phe Ser Ser Pro Pro Gln Met
85 90 95

His Ser Ser Ala Ile Pro Leu Asp Phe Asp Val Ser Ser Pro Leu Thr
100 105 110

Tyr Gly Thr Pro Ser Ser Arg Val Glu Gly Thr Pro Arg Ser Gly Val
115 120 125

Arg Gly Thr Pro Val Arg Gln Arg Pro Asp Leu Gly Ser Ala Gln Lys
130 135 140

Gly Leu Gln Val Asp Leu Gln Ser Asp Gly Ala Ala Ala Glu Asp Ile
145 150 155 160

Val Ala Ser Glu Gln Ser Leu Gly Gln Lys Leu Val Ile Trp Gly Thr
165 170 175

Asp Val Asn Val Ala Ala Cys Lys Glu Asn Phe Gln Arg Phe Leu Gln
180 185 190

Arg Phe Ile Asp Pro Leu Ala Lys Glu Glu Glu Asn Val Gly Ile Asp
195 200 205

Ile Thr Glu Pro Leu Tyr Met Gln Arg Leu Gly Glu Ile Asn Val Ile
210 215 220

Gly Glu Pro Phe Leu Asn Val Asn Cys Glu His Ile Lys Ser Phe Asp
225 230 235 240

Lys Asn Leu Tyr Arg Gln Leu Ile Ser Tyr Pro Gln Glu Val Ile Pro
245 250 255

Thr Phe Asp Met Ala Val Asn Glu Ile Phe Phe Asp Arg Tyr Pro Asp
260 265 270

Ser Ile Leu Glu His Gln Ile Gln Val Arg Pro Phe Asn Ala Leu Lys
275 280 285

Thr Lys Asn Met Arg Asn Leu Asn Pro Glu Asp Ile Asp Gln Leu Ile
290 295 300

340

<210> 1052
<211> 85
<212> PRT
<213> Homo sapiens

<400> 1052
Pro Ala Ala Arg Ala Ala Thr Asp Ser Val Ser Ala Ile Phe Asp Lys
1 5 10 15

Gly Lys Lys Val Arg Glu Ser Phe Gln Ala Leu Gly Arg Ile Ile Phe
20 25 30

Phe Gln Asp Ala Val Phe Arg Thr Phe Val Ile Lys His Thr Ala Gln
35 40 45

Val Ile Thr Gly Ile Asp Ser Asp Ile Arg His Leu Ser Leu Ala Leu
50 55 60

Leu Lys Asn Gly Gly Asn Val Ile Ser Trp Ala Gly Val Gly Cys Asn
65 70 75 80

Pro Glu Val Pro Leu
85

<210> 1053
<211> 724
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (87)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (680)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1053
Val Asp Ser Glu Ser Ala Ser Val Val Gly Lys Arg Pro Pro Phe His
1 5 10 15

Gly Thr Pro Ser Thr Met Ser Ser Pro Ala Ser Thr Pro Ser Arg Arg
20 25 30

65 70 75 80

Leu Asn Lys Ile Ile His Phe Pro Asp Phe Asp Lys Lys Ile Pro Val
85 90 95

Lys Leu Phe Pro Xaa Pro Leu Leu Tyr Val Gly Asn His Ile Ser Gly
100 105 110

Leu Ser Ser Thr Ser Lys Leu Ser Leu Pro Met Phe Thr Val Leu Arg
115 120 125

Lys Phe Thr Ile Pro Leu Thr Leu Leu Leu Glu Thr Ile Ile Leu Gly
130 135 140

Lys Gln Tyr Ser Leu Asn Ile Ile Leu Ser Val Phe Ala Ile Ile Leu
145 150 155 160

Gly Ala Phe Ile Ala Ala Gly Ser Asp Leu Ala Phe Asn Leu Glu Gly
165 170 175

Tyr Ile Phe Val Phe Leu Asn Asp Ile Phe Thr Ala Ala Asn Gly Val
180 185 190

Tyr Thr Lys Gln Lys Met Asp Pro Lys Glu Leu Gly Lys Tyr Gly Val
195 200 205

Leu Phe Tyr Asn Ala Cys Phe Met Ile Ile Pro Thr Leu Ile Ile Ser
210 215 220

Val Ser Thr Gly Asp Leu Gln Gln Ala Thr Glu Phe Asn Gln Trp Lys
225 230 235 240

Asn Val Val Phe Ile Leu Gln Phe Leu Leu Ser Cys Phe Leu Gly Phe
245 250 255

Leu Leu Met Tyr Ser Thr Val Leu Cys Ser Tyr Tyr Asn Ser Ala Leu
260 265 270

Thr Thr Ala Val Val Gly Ala Ile Lys Asn Val Ser Val Ala Tyr Ile
275 280 285

Gly Ile Leu Ile Gly Gly Asp Tyr Ile Phe Ser Leu Leu Asn Phe Val
290 295 300

Gly Leu Asn Ile Cys Met Ala Gly Gly Leu Arg Tyr Ser Phe Leu Thr
305 310 315 320

Leu Ser Ser Gln Leu Lys Pro Lys Pro Val Gly Glu Glu Asn Ile Cys
325 330 335

Leu Asp Leu Lys Ser

<210> 1050
<211> 43
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (11)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (34)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1050
Gly Lys Lys Ile Lys Lys Leu Ala Ser Ala Xaa Arg Gly Gly Ser Leu
1 5 10 15

Pro Val Ile Pro Ala Leu Ser Ala Ala Glu Ala Ser Gly Ser Leu Glu
20 25 30

Val Xaa Ser Ser Lys Thr Ser Leu Gly Gln Thr
35 40

<210> 1051
<211> 341
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (101)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1051
Gly Pro Gln Glu Met Thr Ala Gly Gly Gln Ala Glu Ala Glu Gly Ala
1 5 10 15

Gly Gly Glu Pro Gly Ala Ala Arg Leu Pro Ser Arg Val Ala Arg Leu
20 25 30

Leu Ser Ala Leu Phe Tyr Gly Thr Cys Ser Phe Leu Ile Val Leu Val
35 40 45

Asn Lys Ala Leu Leu Thr Thr Tyr Gly Phe Pro Ser Pro Ile Phe Leu
50 55 60

Gly Ile Gly Gln Met Ala Ala Thr Ile Met Ile Leu Tyr Val Ser Lys

<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (74)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1048
Pro Gly Ser Pro Asp Gln Arg Pro Thr Pro Gln Gly Glu Phe Ile Leu
1   5   10   15

Cys Gln Gln Gln Ser Phe Pro Ser Ser Glu Ala Ser His Pro His Pro
            20   25   30

Arg Arg Gln Gly Lys Gln Ala Arg Gly Gly Gln Glu Ser Ser Gln Leu
        35   40   45

Ser Glu Ala Ala Pro Pro Ala Pro Lys His Leu Pro Cys Ser Gln Leu
    50   55   60

Xaa Xaa Gln Leu Leu Pro Ala Ala Lys Xaa Thr Ala Ala Phe Arg Leu
65   70   75   80

Thr Ser Met Pro Leu
                85

<210> 1049
<211> 75
<212> PRT
<213> Homo sapiens

<400> 1049
Ser Pro Cys Arg Glu Glu Ser Gln Gln Ile Ile Ser Lys Leu Glu Asn
1   5   10   15

Gln Glu Ile Thr Val Ile Ile Arg Asp Ile Trp Gly Gly Tyr Lys Tyr
            20   25   30

Gln Asn Lys Lys Ile Lys Glu Met Lys Ile Val Val Ser Gly Glu Leu
        35   40   45

Lys Ser Lys Ile Gln Arg Cys Glu Ala Asp Leu Ile Tyr Tyr Leu Thr
    50   55   60

Cys Ile Leu Phe Ile Ala Gln Tyr Ser Val Phe
65   70   75

Thr Lys Pro Leu Ile Xaa Gln Tyr Glu Xaa Asn Phe Gln Asn Gly Ile
180 185 190

Glu Cys Gly Gly Ala Tyr Val Lys Leu Leu Ser Lys Thr Pro Glu Leu
195 200 205

Xaa Leu Asp Xaa Val Xaa Arg Thr Ile Asn Cys Leu His
210 215 220

<210> 1047
<211> 82
<212> PRT
<213> Homo sapiens

<400> 1047
Gly Ile Pro Pro His Phe Cys Gly Phe Phe Pro Val Val Asp Asp Gln
1 5 10 15

Gly Trp Asn Leu Gln Ser Met Gly Pro Asp Phe Leu Pro Ser Ser Gln
20 25 30

Ile Asp Ser Ala Ala Ser His Leu Cys Ser Ala Pro Val Ala Leu Lys
35 40 45

Cys Asn Arg Asn His His Pro Arg Thr Met Gly Ser Met Pro Val Gly
50 55 60

Lys Ala Gln Val Arg Ser Leu Ser Ser Gln His Ile Ala Val Ala Gly
65 70 75 80

Thr Trp

<210> 1048
<211> 85
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (65)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (66)

<222> (186)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (209)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (212)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (214)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1046
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Arg Ser Gly Arg Leu Arg Leu Ser Leu Tyr Cys Gly Ala Gly Gln Gly
  1               5                  10                  15

Val Arg Ala Gly Arg Gly Thr Gly Thr Pro Ala Val Xaa Gly Arg Leu
             20                  25                  30

Glu Ile Met Glu Gly Lys Trp Leu Leu Cys Met Leu Leu Val Leu Gly
         35                  40                  45

Thr Ala Ile Val Glu Ala His Asp Gly His Asp Asp Asp Val Ile Asp
     50                  55                  60

Ile Glu Asp Asp Leu Asp Asp Val Ile Glu Glu Val Glu Asp Ser Lys
 65                  70                  75                  80

Pro Asp Thr Thr Ala Pro Pro Ser Ser Pro Lys Val Thr Tyr Lys Ala
                 85                  90                  95

Pro Val Pro Thr Gly Glu Val Tyr Phe Ala Asp Ser Phe Asp Arg Gly
            100                 105                 110

Thr Leu Ser Gly Trp Ile Leu Ser Lys Ala Lys Lys Asp Asp Thr Asp
        115                 120                 125

Asp Glu Ile Ala Lys Tyr Asp Gly Lys Trp Glu Val Glu Glu Met Lys
    130                 135                 140

Glu Ser Lys Leu Pro Gly Asp Lys Gly Leu Val Leu Met Ser Arg Ala
145                 150                 155                 160

Lys His His Ala Ile Ser Ala Lys Leu Asn Lys Pro Phe Leu Phe Asp
                165                 170                 175
```

Leu Gln Arg Gln Ile Ala Gln Pro Glu Met Arg Cys Thr Ile Arg Leu
35 40 45

Leu Asp Asp Ser Glu Ile Ser Cys His Ile Gln Arg Glu Thr Lys Gly
50 55 60

Gln Phe Leu Ile Asp His Ile Cys Asn Tyr Tyr Ser Leu Leu Glu Lys
65 70 75 80

Asp Tyr Phe Gly Ile Arg Tyr Val Asp Pro Glu Lys Gln Arg His Trp
85 90 95

Ala

<210> 1045
<211> 43
<212> PRT
<213> Homo sapiens

<400> 1045
Thr Leu Ile Phe Pro Pro Leu Arg Ile Ile Asn Phe Leu Ser Phe Tyr
1 5 10 15

His Ile Cys Phe Arg Ser Phe Phe Phe Leu Lys Lys Ser Ile Thr Asp
20 25 30

Leu Ala Lys Val Pro Phe Asp Gln Tyr Pro Thr
35 40

<210> 1046
<211> 221
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (29)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (182)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE

<400> 1042
Ala Asn Leu Met Lys Cys Lys Val Gln Ala Gly Met Ile Xaa Ser Val
1 5 10 15

Cys Lys Asp Lys Ser Phe Asp Asp Glu Glu Ser Val Asp Gly Asn Arg
20 25 30

Pro Ser Ser Ala Ala Ser Ala Phe Lys Val Pro Ala Leu Lys His Pro
35 40 45

Glu Ile Leu Pro Thr Val Gln Gly Ser Trp Phe Ser Arg Trp Pro
50 55 60

<210> 1043
<211> 64
<212> PRT
<213> Homo sapiens

<400> 1043
Gln Leu Arg Ser Arg Ala Gly Leu Leu Ser Ser Thr Val Arg Ala Arg
1 5 10 15

Asn Trp Pro Gln Asn Pro Gln Ser Gln Pro Trp Gly Pro Leu Gly Pro
20 25 30

Gln Thr Pro Val Phe Ser Phe Cys Val Ala Ser Trp Phe Pro Gly Val
35 40 45

Leu Phe Tyr Ala Ala Ser Gly Val Arg Ser Ser Ala Phe Asn Leu Phe
50 55 60

<210> 1044
<211> 97
<212> PRT
<213> Homo sapiens

<400> 1044
Ala Ser Arg Ser Leu Pro Thr Ala Ala Val His Val Arg Leu Leu Pro
1 5 10 15

Leu Cys Ala Glu Arg Gln Glu Asp His Glu Asn Asp Pro Leu Ser Glu
20 25 30

Phe Met Leu Val Leu Ala Ser Asn Leu Pro Glu Gln Phe Asp Cys Ala
35 40 45

Ile Asn Ser Arg Ile Asp Val Met Val His Phe Asp Leu Pro Gln Xaa
50 55 60

Glu Glu Arg Glu Arg Leu Val Arg Leu His Phe Asp Asn Cys Val Leu
65 70 75 80

Lys Pro Ala Thr Glu Gly Lys Arg Arg Leu Lys Leu Ala Gln Phe Asp
85 90 95

Tyr Gly Arg Lys Cys Ser Glu Val Ala Arg Leu Thr Glu Gly Met Ser
100 105 110

Gly Arg Glu Ile Ala Gln Leu Ala Val Ser Trp Gln Ala Thr Ala Tyr
115 120 125

Ala Ser Lys Asp Gly Val Leu Thr Glu Ala Met Met Asp Ala Cys Val
130 135 140

Gln Asp Ala Val Gln Gln Tyr Arg Gln Lys Met Arg Trp Leu Lys Ala
145 150 155 160

Glu Gly Pro Gly Arg Gly Val Glu His Pro Leu Ser Gly Val Gln Gly
165 170 175

Glu Thr Leu Thr Ser Trp Ser Leu Ala Thr Asp Pro Ser Tyr Pro Cys
180 185 190

Leu Ala Gly Pro Cys Thr Phe Arg Ile Cys Ser Trp Met Gly Thr Gly
195 200 205

Leu Cys Pro Gly Pro Leu Ser Pro Arg Met Ser Cys Gly Gly Gly Arg
210 215 220

Pro Phe Cys Pro Pro Gly His Pro Leu Leu
225 230

<210> 1042
<211> 63
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (14)
<223> Xaa equals any of the naturally occurring L-amino acids

145 150 155

<210> 1040
<211> 85
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (30)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1040
Pro Ser Pro Cys Pro Cys Ser Cys Ala Trp Val Arg Trp Pro Arg Arg
1 5 10 15

Thr Pro Pro Ser Arg Thr Thr Arg Ala Arg Thr His Gln Xaa Arg Asp
20 25 30

Met Ala Arg Tyr Tyr Ser Ala Leu Arg His Tyr Ile Asn Leu Ile Thr
35 40 45

Arg Gln Arg Tyr Gly Lys Arg Ser Ser Pro Glu Thr Leu Ile Ser Asp
50 55 60

Leu Leu Met Arg Glu Ser Thr Glu Asn Val Pro Arg Thr Arg Leu Glu
65 70 75 80

Asp Pro Ala Met Trp
85

<210> 1041
<211> 234
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (64)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1041
Leu Gly Gln Tyr Gln Pro Ala Arg Glu Glu Ile Ser Lys Asp Leu Arg
1 5 10 15

Ala Thr Leu Asn Ala Phe Leu Tyr His Met Gly Gln His Ser Asn Lys
20 25 30

```
Thr Pro Ile Arg Asp Pro Gln Arg Arg Cys Met Ser Ile Leu Ala Pro
        35                  40                  45

Arg Ala Val Met Gln Pro Ala Arg Ser Gln Gly Glu Gly Thr Gln Lys
    50                  55                  60

Pro Gly Met Leu Ala Lys Gly Val Lys Glu Thr Phe Glu Leu Phe Thr
65                  70                  75                  80

Ala Cys Ser Asn Tyr Val Lys Xaa Thr Pro Leu Asn Lys Ile Trp Ser
                85                  90                  95

Met Phe Val Xaa Leu Tyr Leu Ile
            100
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<210> 1039
<211> 156
<212> PRT
<213> Homo sapiens

<400> 1039
Gly His Met Glu Leu Ala Met Asp Asn Ser Tyr Ala Phe Asn Gln Arg
1               5                   10                  15

Ser Thr Cys Asn Gly Ile Pro Ser Glu Lys Lys Asn Asn Phe Leu Val
            20                  25                  30

Ser Glu Asp His Gly Gln Lys Ile Leu Ser Val Leu Gln Asn Phe Arg
        35                  40                  45

Glu Gln Asn Val Phe Tyr Asp Phe Lys Ile Ile Met Lys Asp Glu Ile
    50                  55                  60

Ile Pro Cys His Arg Cys Val Leu Ala Ala Cys Ser Asp Phe Phe Arg
65                  70                  75                  80

Ala Met Phe Glu Val Asn Met Lys Glu Arg Asp Asp Gly Ser Val Thr
                85                  90                  95

Ile Thr Asn Leu Ser Ser Lys Ala Val Lys Ala Phe Leu Asp Tyr Ala
            100                 105                 110

Tyr Thr Gly Lys Thr Lys Ile Thr Asp Asp Asn Val Glu Met Phe Phe
        115                 120                 125

Gln Leu Ser Ser Phe Leu Gln Val Ser Phe Leu Ser Lys Ala Cys Ser
    130                 135                 140

Asp Phe Leu Ile Lys Ser Ile Asn Leu Glu Lys Lys
```

Ala Val Gly Leu Val Ser Ser Val Val Val Tyr Pro Val Tyr Leu Ala
65 70 75 80

Xaa Leu Phe Leu Phe Xaa Met Ser Arg Ser Lys Val Ile Asn Thr Leu
85 90 95

Ala Asp His Arg His Arg Gly Thr Asp Phe Gly Gly Ser Pro Trp Leu
100 105 110

Leu Ile Ile Asn Cys Val Ser Glu Lys Leu
115 120

<210> 1037
<211> 29
<212> PRT
<213> Homo sapiens

<400> 1037
Thr Pro Gly Leu Lys Gln Ser Phe Cys Leu Gly Pro Pro Lys Cys Trp
1 5 10 15

Asp Cys Gly His Glu Leu Leu Cys Pro Ala Ser Met Phe
20 25

<210> 1038
<211> 104
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (88)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (100)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1038
Glu Thr Ala Arg Gly Thr Gly Arg Asn Gly Leu Ser Ala Leu Asn His
1 5 10 15

His Lys Pro Trp Leu Arg Lys Gly His Ala Ser Pro Ser Arg Arg Met
20 25 30

Xaa Gly Thr Pro Glu Asn Thr Pro Leu Phe Met Val Leu Cys Pro Phe
85 90 95

Ile Arg Arg Leu Leu Lys Asn Trp Ala Val Cys Lys Ala Asn Pro Ala
100 105 110

Pro Cys Pro Ser Arg Phe Ser Glu Arg Gly Val Pro Trp Glu Trp Ser
115 120 125

Cys Ser Pro His Gly Ser Thr Thr Phe Pro Val Pro Arg Cys His
130 135 140

<210> 1036
<211> 122
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (52)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (57)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (81)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (86)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1036
Glu His Ile Trp Leu Ser Ile Trp Asp Arg Pro Pro Arg Ser Cys Phe
1 5 10 15

Thr Arg Ile Gln Arg Ala Thr Cys Cys Val Leu Leu Ile Cys Leu Phe
20 25 30

Leu Gly Ala Asn Ala Val Trp Tyr Gly Ala Val Gly Asp Ser Ala Tyr
35 40 45

Ser Thr Gly Xaa Val Ser Arg Leu Xaa Pro Leu Ser Val Asp Thr Val
50 55 60

Ile Ile His Lys Lys Arg Gly His Ser Pro Phe Ala Arg Leu Leu Asn
35 40 45

Glu Leu His Ser Phe Cys Thr Trp Lys Cys Leu Phe Ser His Lys Lys
50 55 60

Asn Asn Ser Tyr Asn Leu Ile Ser Leu Val Pro Tyr Gln Gln Lys Lys
65 70 75 80

Ser Gln Glu Thr Ile Met Lys Thr Leu Val Ser Ser Leu Gly Asp Tyr
85 90 95

Ile Met Leu Xaa Ser Leu Ile Ile Xaa Leu Tyr Leu Asn Lys Tyr Ile
100 105 110

Phe

<210> 1035
<211> 143
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (23)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (81)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1035
Gly Leu Arg Asp Leu Asp Ser Asn Pro Arg Ala Leu Ser Cys Tyr Ser
1 5 10 15

Gly Val Ser Thr Val Arg Xaa Gly Pro Gly Ala Leu Ser His His Leu
20 25 30

Pro Arg Pro Arg Asp His His Pro Leu Lys Arg Gly Pro Ser Pro Leu
35 40 45

Ser Thr Pro Ser Arg Asp Pro Ala Leu Gly Cys Ser Arg Leu Thr Ala
50 55 60

His Gly Val Leu Phe Trp Ala Thr Ala Ala Arg Ala Pro Gly Arg Gly
65 70 75 80

50 55 60

<210> 1033
<211> 63
<212> PRT
<213> Homo sapiens

<400> 1033
Lys Leu Cys Met Lys Thr Gly Gly Lys His Ser Val Ile Arg Tyr Phe
1 5 10 15

Ser Asn Ile Lys Thr Thr Lys Thr Asn Asp Lys Asn Val Tyr Phe Tyr
20 25 30

Thr Pro Ala Tyr Arg Val Ser Phe Arg Asp Val Tyr Glu Tyr Leu Asn
35 40 45

Leu Leu Ile Ser Val Leu Met Lys Ala Glu Leu Asn Arg Glu Ser
50 55 60

<210> 1034
<211> 113
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (16)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (100)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (105)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1034
Val Asn Leu Ala Cys Gly Ala Pro Leu Lys Cys Glu Asp Leu Ala Xaa
1 5 10 15

Trp Leu Lys Ile Lys Leu Gly Phe Val Leu Asn Ile Leu Ala Gly Pro
20 25 30

Val Ala Leu Cys Cys Pro Gly Trp Tyr Gly Thr Pro Val Leu Lys Arg
20 25 30

Ser Ser Cys Leu Gly Phe Pro Lys Cys
35 40

<210> 1031
<211> 43
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (7)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1031
Pro Gly Trp Ser Gln Ser Xaa Gly Leu Arg Pro Ser Phe His Leu Ile
1 5 10 15

Leu Pro Lys Asn Trp Asp Tyr Arg His Glu Gln Leu His Leu Val His
20 25 30

Met Leu Leu Ile Val Glu Glu Val Lys Gly Gln
35 40

<210> 1032
<211> 63
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (50)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1032
Gln Gly Phe Trp His Gln Leu Glu Ile Leu Trp Met Asp Val Leu Pro
1 5 10 15

Trp Ser Phe Tyr Phe Asn Val Leu Thr Thr Tyr Asp Ser Ser Ile Cys
20 25 30

Ser Ile Asn Tyr Ile His Tyr His Ser Asn Ser His His Leu Ile Cys
35 40 45

Ile Xaa Tyr Leu Ile Leu Pro Ser Asn Tyr Gly Ile Ser Asp Leu

35 40 45

His Asn Phe Thr Leu Pro Ser Trp Ala Thr Glu Asp Thr Met Thr Lys
50 55 60

Leu Arg Glu Leu Ser Glu Leu Ser Leu Leu Ser Leu Tyr Gly Ile His
65 70 75 80

Lys Gln Lys Glu Lys Ser Arg Leu Gln Gly Gly Val Leu Val Asn Glu
85 90 95

Ile Leu Asn His Met Lys Arg Ala Thr Gln Ile Pro Ser Tyr Lys Lys
100 105 110

Leu Ile Met Tyr Ser Ala His Asp Thr Thr Val Ser Gly Leu Gln Met
115 120 125

Ala Leu Asp Val Tyr Asn Gly Leu Leu Pro Pro Tyr Ala Ser Cys His
130 135 140

Leu Thr Glu Leu Tyr Phe Glu Lys Gly Glu Tyr Phe Val Glu Met Tyr
145 150 155 160

Tyr Arg Asn Glu Thr Gln His Glu Pro Tyr Pro Leu Met Leu Pro Gly
165 170 175

Cys Ser Pro Ser Cys Pro Leu Glu Arg Phe Ala Glu Leu Val Gly Pro
180 185 190

Val Ile Pro Gln Asp Trp Ser Thr Glu Cys Met Thr Thr Asn Ser His
195 200 205

Gln Gly Thr Glu Asp Ser Thr Asp
210 215

<210> 1030
<211> 41
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (10)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1030
His His Ala Trp Leu Ile Phe Leu Ile Xaa Ile Phe Ser Arg Asp Lys
1 5 10 15

<220>
<221> SITE
<222> (41)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (111)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1028
Ser Leu Thr Ser Cys Ile Leu Glu Ile Leu Gln Ser Leu Ser Tyr Ser
1   5   10   15

Tyr Gln Asn Ser Cys Arg Pro Leu Thr Pro Asp Ser Pro Cys Leu Gln
            20   25   30

Cys Pro Pro Ala Cys Arg Gly Gly Xaa Val Thr Ala Thr Leu Ser His
        35   40   45

Gln Leu Phe Ser Ile Cys Arg Pro Ser Trp Gly Arg Val Pro Ser Ser
    50   55   60

Cys Ser Pro Cys Leu Trp Glu Lys Ser His Val Leu Phe Ile Ser Pro
65   70   75   80

His Cys Thr Leu Ser Leu Thr Leu Asp Tyr Asn Ser Ser Glu Phe Asp
                85   90   95

Leu His Leu Leu Asp Lys Pro Gly Thr Val Leu Gly Ile Met Xaa Thr
            100   105   110

Ile Arg Gln Ile
        115

<210> 1029
<211> 216
<212> PRT
<213> Homo sapiens

<400> 1029
Thr Leu Lys Ser Glu Glu Phe Gln Lys Arg Leu His Pro Tyr Lys Asp
1   5   10   15

Phe Ile Ala Thr Leu Gly Lys Leu Ser Gly Leu His Gly Gln Asp Leu
            20   25   30

Phe Gly Ile Trp Ser Lys Val Tyr Asp Pro Leu Tyr Cys Glu Ser Val

Phe Pro Gly Ile Tyr Asp Ala Leu Phe Asp Ile Glu Ser Lys Val Asp
195 200 205

Pro Ser Lys Ala Trp Gly Glu Val Lys Arg Gln Ile Tyr Val Ala Ala
210 215 220

Phe Thr Val Gln Ala Ala Ala Glu Thr Leu Ser Glu Val Ala
225 230 235

<210> 1027
<211> 132
<212> PRT
<213> Homo sapiens

<400> 1027
Gly Pro Thr Thr Thr Lys Phe Ala Ala Arg Arg Gln Gly Val Leu Leu
1 5 10 15

Ile Thr Met Asn Val Leu Leu Gly Ser Val Val Ile Phe Ala Thr Phe
20 25 30

Val Thr Leu Cys Asn Ala Ser Cys Tyr Phe Ile Pro Asn Glu Gly Val
35 40 45

Pro Gly Asp Ser Thr Arg Lys Cys Met Asp Leu Lys Gly Asn Lys His
50 55 60

Pro Ile Asn Ser Glu Trp Gln Thr Asp Asn Cys Glu Thr Cys Thr Cys
65 70 75 80

Tyr Glu Thr Glu Ile Ser Cys Cys Thr Leu Val Ser Thr Pro Val Gly
85 90 95

Tyr Asp Lys Asp Asn Cys Gln Arg Ile Phe Lys Lys Glu Asp Cys Lys
100 105 110

Tyr Ile Val Val Glu Lys Lys Asp Pro Lys Lys Thr Cys Ser Val Ser
115 120 125

Glu Trp Ile Ile
130

<210> 1028
<211> 116
<212> PRT
<213> Homo sapiens

130 135 140

Leu Leu Trp Gln Pro Ile Pro Val His Thr Val Pro Leu Ser Glu Asp
145 150 155 160

Gln Leu Leu Tyr Leu Thr Phe Gln Glu Leu Pro
165 170

<210> 1026
<211> 238
<212> PRT
<213> Homo sapiens

<400> 1026
Ala Asn Trp Asp Leu Glu Met Ile Leu Arg Cys Ser Ser Asn Asp Leu
1 5 10 15

Glu Leu Leu Gln Ala Glu His Gly Ile Leu Lys Ile Gly Glu Thr Asn
20 25 30

Lys Phe Ser Gly Tyr Pro Leu Tyr His Ser Val Tyr Glu Thr Tyr Glu
35 40 45

Leu Val Glu Lys Phe Tyr Asp Pro Met Phe Lys Tyr His Leu Thr Val
50 55 60

Ala Gln Val Arg Gly Gly Met Val Phe Glu Leu Ala Asn Ser Ile Val
65 70 75 80

Leu Pro Phe Asp Cys Arg Asp Tyr Ala Val Val Leu Arg Lys Tyr Ala
85 90 95

Asp Lys Ile Tyr Ser Ile Ser Met Lys His Pro Gln Glu Met Lys Thr
100 105 110

Tyr Ser Val Ser Phe Asp Ser Leu Phe Ser Ala Val Lys Asn Phe Thr
115 120 125

Glu Ile Ala Ser Lys Phe Ser Glu Arg Leu Gln Asp Phe Asp Lys Ser
130 135 140

Asn Pro Ile Val Leu Arg Met Met Asn Asp Gln Leu Met Phe Leu Glu
145 150 155 160

Arg Ala Phe Ile Asp Pro Leu Gly Leu Pro Asp Arg Pro Phe Tyr Arg
165 170 175

His Val Ile Tyr Ala Pro Ser Ser His Asn Lys Tyr Ala Gly Glu Ser
180 185 190

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1024
Ala Trp Gly Ala Ala Arg Arg Gly Arg Gln Arg Pro Cys Pro Leu Leu
1   5   10   15

Ala Gly Arg Thr Glu Phe Trp Pro Xaa Cys Glu Gly Lys Ala Glu Ala
            20   25   30

Cys Xaa Gly Xaa Trp Phe Lys Leu Xaa Gly Gln Gly Lys Gly Arg Gly
        35   40   45

Glu Trp Phe Ser Arg Ser Arg Arg Leu Cys Ser Arg Trp Thr Leu Glu
    50   55   60

Asn Lys Gly Glu Ser Ser Arg Glu Gln
65   70

<210> 1025
<211> 171
<212> PRT
<213> Homo sapiens

<400> 1025
Leu Leu Pro Glu Thr Ala Leu Leu Asn Met Arg Ala Ala Pro Leu Leu
1   5   10   15

Leu Ala Arg Ala Ala Ser Leu Ser Leu Gly Phe Leu Phe Leu Leu Phe
            20   25   30

Phe Trp Leu Asp Arg Ser Val Leu Ala Lys Glu Leu Lys Phe Val Thr
        35   40   45

Leu Val Phe Arg His Gly Asp Arg Ser Pro Ile Asp Thr Phe Pro Thr
    50   55   60

Asp Pro Ile Lys Glu Ser Ser Trp Pro Gln Gly Phe Gly Gln Leu Thr
65   70   75   80

Gln Leu Gly Met Glu Gln His Tyr Glu Leu Gly Glu Tyr Ile Arg Lys
                85   90   95

Arg Tyr Arg Lys Phe Leu Asn Glu Ser Tyr Lys His Glu Gln Val Tyr
            100   105   110

Ile Arg Ser Thr Asp Val Asp Arg Thr Leu Met Ser Ala Met Thr Asn
        115   120   125

Leu Ala Ala Leu Phe Pro Pro Glu Gly Val Ser Ile Trp Asn Pro Ile

35 40 45

Pro Cys Ser Arg Arg Arg Thr Gly Leu Ser Pro Gly Ser Trp Gly Trp
50 55 60

Pro Pro Ser Thr Arg Ser Ala Cys Phe Leu Thr Cys Leu Ser Ser Arg
65 70 75 80

Ser Tyr Arg Leu Gln Ile Gly His Phe Leu Cys Leu Val Ile Leu Val
85 90 95

Tyr Cys Ala Glu Tyr Ile Asn Glu Ala Ala Ala Met Asn Trp Arg Leu
100 105 110

Phe Ser Lys Tyr Gln Tyr Phe Asp Ser Arg Gly Met Phe Ile Ser Ile
115 120 125

Val Phe Ser Ala Pro Leu Leu Val Asn Ala Met Ile Ile Val Val Met
130 135 140

Trp Val Trp Lys Thr Leu Asn Val Met Thr Asp Leu Lys Asn Ala Gln
145 150 155 160

Glu Arg Arg Lys Glu Lys Lys Arg Arg Arg Lys Glu Asp
165 170

<210> 1024
<211> 73
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (25)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (34)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (36)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (41)

225 230 235 240

Cys Phe Val Arg Glu Glu Ser Phe Glu Arg Lys Gly Leu Ile Asp Tyr
245 250 255

Asn Phe His Cys Phe Arg Lys Ala Ile His Glu Val Phe Glu Val Arg
260 265 270

Met Lys Val Val Lys Ser Arg Lys Val Gln Asn Arg Leu Gln Lys Lys
275 280 285

Lys Arg Ala Thr Pro Asn Gly Thr Pro Arg Val Leu Leu
290 295 300

<210> 1022
<211> 36
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (10)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1022
Thr Ala Asn Arg Gly Ser Ser Ala Ser Xaa Lys Ala Asp Ser Gly Leu
1 5 10 15

Ala Gln Ser Asp Gly Arg Asp Pro Pro Thr Leu Trp Gly Trp Ser Leu
20 25 30

His Leu Ala Leu
35

<210> 1023
<211> 173
<212> PRT
<213> Homo sapiens

<400> 1023
Ile Arg Gln Ser Ser Arg Glu Arg Ile Trp Arg Pro Pro Leu Trp Ile
1 5 10 15

Leu Ala Arg Pro Gly Ser Ala Val Ala Val Arg Ala Gly Phe Pro Thr
20 25 30

Pro Cys Arg Pro Pro Ser Leu Ser Ala Leu Ser Pro Ser Ala Ser Gln

<210> 1021
<211> 301
<212> PRT
<213> Homo sapiens

<400> 1021
Pro Thr Pro Pro Thr Pro Ile Arg Thr Ala Ala Gln Arg Arg Glu Ile
1 5 10 15

Trp Asp Phe Pro Gly Gln Ile Asp Phe Phe Asp Pro Thr Phe Asp Tyr
20 25 30

Glu Met Ile Phe Arg Gly Thr Gly Ala Leu Ile Phe Val Ile Asp Ser
35 40 45

Gln Asp Asp Tyr Met Glu Ala Leu Ala Arg Leu His Leu Thr Val Thr
50 55 60

Arg Ala Tyr Lys Val Asn Thr Asp Ile Asn Phe Glu Val Phe Ile His
65 70 75 80

Lys Val Asp Gly Leu Ser Asp Asp His Lys Ile Glu Thr Gln Arg Asp
85 90 95

Ile His Gln Arg Ala Asn Asp Asp Leu Ala Asp Ala Gly Leu Glu Lys
100 105 110

Ile His Leu Ser Phe Tyr Leu Thr Ser Ile Tyr Asp His Ser Ile Phe
115 120 125

Glu Ala Phe Ser Lys Val Val Gln Lys Leu Ile Pro Gln Leu Pro Thr
130 135 140

Leu Glu Asn Leu Leu Asn Ile Phe Ile Ser Asn Ser Gly Ile Glu Lys
145 150 155 160

Ala Phe Leu Phe Asp Val Val Ser Lys Ile Tyr Ile Ala Thr Asp Ser
165 170 175

Thr Pro Val Asp Met Gln Thr Tyr Glu Leu Cys Cys Asp Met Ile Asp
180 185 190

Val Val Ile Asp Ile Ser Cys Ile Tyr Gly Leu Lys Glu Asp Gly Ala
195 200 205

Gly Thr Pro Tyr Asp Lys Glu Ser Thr Ala Ile Ile Lys Leu Asn Asn
210 215 220

Thr Thr Val Leu Tyr Leu Lys Glu Val Thr Lys Phe Leu Ala Leu Val

Val Leu Leu Ile Thr Phe Leu Gly Glu Glu Lys Lys Cys Tyr Ser Cys
1   5   10   15

Lys Gln Met Tyr Ser Phe Gln Lys Glu Ala Thr Phe Leu Leu Pro Ser
            20   25   30

Leu Phe Leu Val Ser Ser Pro Arg Leu Ala Ile Xaa Ile Gly Ile Val
        35   40   45

Met Ala Ser Ile Leu Ser Leu Leu His Pro Tyr Leu Leu Leu Cys Asp
    50   55   60

Phe Ala Ala Pro Leu Ile Lys Glu Ala Glu Pro Pro Leu Pro Pro Ile
65   70   75   80

Gly Ala Gly Phe Glu Ser Asn Arg Met Lys
                85   90

<210> 1020
<211> 71
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (16)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (44)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1020
Thr Arg Pro Ile Arg Pro Pro His Gln Ile Pro Val Asp Thr Leu Xaa
1   5   10   15

His Val Ile Asn Gln Thr Gly Gly Tyr Ser Asp Gly Leu Gly Gly Asn
            20   25   30

Ser Leu Tyr Ser Pro His Asn Leu Asn Ala Asn Xaa Gly Trp Gln Asp
        35   40   45

Ala Thr Thr Pro Ser Ser Val Thr Ser Pro Thr Glu Gly Pro Gly Ser
    50   55   60

Val His Ser Asp Thr Ser Asn
65   70

225 230 235 240

Leu Glu Thr Ile Gln Glu Gln Gln Thr Thr Glu Ser Ala Gly Gln Asp
245 250 255

Leu Ile Ser Ile Pro Lys Ala Val Glu Pro Met Glu Ile Asp Ser Glu
260 265 270

Glu Ser Glu Ser Asp Gly Ser Phe Ile Glu Val Gln Ser Val Ile Ser
275 280 285

Asp Glu Glu Leu Gln Ala Glu Phe Pro Glu Thr Ser Lys Pro Pro Ser
290 295 300

Glu Gln Gly Glu Glu Glu Leu Val Gly Thr Arg Glu Gly Glu Ala Pro
305 310 315 320

Ala Glu Ser Glu Ser Leu Leu Arg Asp Asn Ser Glu Arg Asp Asp Val
325 330 335

Asp Gly Glu Pro Gln Glu Ala Glu Lys Asp Ala Glu Asp Ser Leu His
340 345 350

Glu Trp Gln Asp Ile Asn Leu Glu Glu Leu Glu Thr Leu Glu Ser Asn
355 360 365

Leu Leu Ala Gln Gln Asn Ser Leu Lys Ala Gln Lys Gln Gln Gln Glu
370 375 380

Arg Ile Ala Ala Thr Val Thr Gly Gln Met Phe Leu Glu Ser Gln Glu
385 390 395 400

Leu Leu Arg Leu Phe Gly Ile Pro Tyr Ile Gln Ala Pro Met Glu Ala
405 410 415

Glu Ala Gln Cys Ala Ser Trp Thr
420

<210> 1019
<211> 90
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (44)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1019

<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (153)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1018
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Gly Thr Ser Val Asp Glu Gly Ser Ile Ser Pro Arg Thr Leu Ser Ala
1               5                   10                  15

Ile Lys Arg Ala Leu Asp Asp Asp Xaa Asp Val Lys Val Cys Ala Gly
            20                  25                  30

Asp Asp Val Gln Thr Gly Gly Pro Gly Ala Glu Glu Met Arg Ile Asn
        35                  40                  45

Ser Ser Thr Glu Asn Ser Asp Glu Gly Leu Lys Val Arg Asp Gly Lys
    50                  55                  60

Gly Ile Pro Phe Thr Ala Thr Leu Ala Ser Ser Ser Val Asn Ser Ala
65                  70                  75                  80

Glu Glu His Val Ala Ser Thr Asn Glu Gly Arg Glu Pro Thr Asp Ser
                85                  90                  95

Val Pro Lys Glu Gln Met Ser Leu Val His Val Gly Thr Glu Ala Phe
            100                 105                 110

Pro Ile Ser Asp Glu Ser Met Ile Lys Asp Arg Lys Asp Arg Leu Pro
        115                 120                 125

Leu Glu Ser Ala Val Val Arg His Ser Asp Ala Pro Gly Leu Pro Asn
    130                 135                 140

Gly Arg Glu Leu Thr Pro Ala Ser Xaa Thr Cys Thr Asn Ser Val Ser
145                 150                 155                 160

Lys Asn Glu Thr His Ala Glu Val Leu Glu Gln Gln Asn Glu Leu Cys
                165                 170                 175

Pro Tyr Glu Ser Lys Phe Asp Ser Ser Leu Leu Ser Ser Asp Asp Glu
            180                 185                 190

Thr Lys Cys Lys Pro Asn Ser Ala Ser Glu Val Ile Gly Pro Val Ser
        195                 200                 205

Leu Gln Glu Thr Ser Ser Ile Val Ser Val Pro Ser Glu Ala Val Asp
    210                 215                 220

Asn Val Glu Asn Val Val Ser Phe Asn Ala Lys Glu His Glu Asn Phe
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<221> SITE
<222> (188)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1017
Cys Arg Ala Ser Phe Ala Gly Pro Ala Ala Leu Gln Asp Arg Asp Trp
1 5 10 15

Gln Arg Thr Val Ile Ala Met Asn Gly Ile Glu Val Lys Leu Ser Val
20 25 30

Lys Phe Asn Ser Arg Glu Phe Ser Leu Lys Arg Met Pro Ser Arg Lys
35 40 45

Gln Thr Gly Val Phe Gly Val Lys Ile Ala Val Val Thr Lys Arg Glu
50 55 60

Arg Ser Lys Val Pro Tyr Ile Val Arg Gln Cys Val Glu Glu Ile Glu
65 70 75 80

Arg Arg Gly Met Glu Glu Val Gly Ile Tyr Arg Val Ser Gly Val Ala
85 90 95

Thr Asp Ile Gln Ala Leu Lys Ala Xaa Phe Asp Val Asn Asn Lys Asp
100 105 110

Val Ser Val Met Met Ser Glu Met Asp Val Asn Ala Ile Ala Gly Thr
115 120 125

Leu Lys Leu Tyr Phe Arg Glu Leu Pro Glu Pro Leu Phe Thr Asp Glu
130 135 140

Phe Tyr Pro Asn Phe Ala Glu Gly Ile Ala Leu Ser Asp Pro Val Ala
145 150 155 160

Lys Glu Ser Cys Met Leu Asn Leu Leu Leu Ser Leu Ala Gly Ala Asn
165 170 175

Leu Ala Ser Xaa Phe Leu Phe Leu Phe Gly Thr Xaa
180 185

<210> 1018
<211> 424
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (25)

Thr Glu Glu His Met Arg Lys Lys Gln Gln Glu Phe Glu Asn Ile Pro
        115   120   125

Ala Ala Xaa Ser
    130

<210> 1016
<211> 43
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (5)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (42)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1016
Gly Gly Arg Phe Xaa Val His Arg Thr Pro Ile Thr His Pro Ala Ser
  1   5   10   15

Gln Val Glu Gly Leu Gln Val Arg Arg Cys Ile Pro Gln Gly Leu Met
            20   25   30

Leu Ser Ala Ile Phe Ile Pro Arg Gln Xaa Ser
        35   40

<210> 1017
<211> 188
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (105)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (180)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

1 5 10 15

Arg Pro Gly Trp Gly Glu Arg Ala Gly Cys Pro Leu Asp Ser Pro Pro
20 25 30

Pro His Leu Met Ser Arg Pro Ser Ala Pro Trp Ser Xaa Ala Ile Met
35 40 45

Pro Pro Trp Xaa Gly Ala Lys Asp Ile Glu Gly Leu Leu Gly Ala Gly
50 55 60

Gly Gly Arg Asn Leu Val Ala His Ser Pro Leu Thr Ser His Pro Ala
65 70 75 80

Ala Pro Thr Leu Met Pro Ala Val Asn Tyr Ala Pro Leu Asp Leu
85 90 95

<210> 1015
<211> 132
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (131)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1015
Gln Lys Arg Ser Glu Asn Ile Lys Gln Val Glu Val Trp Ser Ile Leu
1 5 10 15

Ser Lys Met Asn Ile Ser Gly Ser Ser Cys Gly Ser Pro Asn Ser Ala
20 25 30

Asp Thr Ser Ser Asp Phe Lys Asp Leu Trp Thr Lys Leu Lys Glu Cys
35 40 45

His Asp Arg Glu Val Gln Gly Leu Gln Val Lys Val Thr Lys Leu Lys
50 55 60

Gln Glu Arg Ile Leu Asp Ala Gln Arg Leu Glu Glu Phe Phe Thr Lys
65 70 75 80

Asn Gln Gln Leu Arg Glu Gln Gln Lys Val Leu His Glu Thr Ile Lys
85 90 95

Val Leu Glu Asp Arg Leu Arg Ala Gly Leu Cys Asp Arg Cys Ala Val
100 105 110

Ala Ser Tyr Ser Lys Phe Leu Gln Asp Asn Asp Ala Gln Leu Phe Thr
50 55 60

Tyr Leu Cys Leu Asn Ile Pro Ile Ser Leu Thr Phe Ile Leu Trp
65 70 75

<210> 1013
<211> 54
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (52)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1013
Gln Asp Arg Glu Gly Phe Gly Ser Gly Gln Ala Gly Asp Gly Tyr Glu
1 5 10 15

His Leu Ser Phe Glu Thr Cys Arg Gly Gly Asn Glu Gly Arg Gly Pro
20 25 30

Cys Val Glu Val Phe Ile Gln Glu Ala Val Val Pro Leu Gly Leu Asn
35 40 45

Ile Ala Ser Xaa Arg Gln
50

<210> 1014
<211> 95
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (45)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (52)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1014
Ala Gly Asp Leu Arg Ala Gly Ser Thr Leu Lys Arg Phe Gly Phe Pro

<220>
<221> SITE
<222> (106)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (111)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1011
Pro Thr Arg Pro Arg Arg Ala Ala Phe Pro Val Trp Val Pro Glu Arg
1 5 10 15

Thr Ala Leu Leu Thr Cys Pro Leu Gly Ala Ala Pro Gly Ser Ser Arg
20 25 30

Glu Ala Pro Gly Ile Ala Gly Pro Pro Asn Ser Thr Ala Met Ser Lys
35 40 45

Leu Gly Lys Phe Phe Lys Gly Gly Gly Ser Ser Lys Ser Arg Ala Ala
50 55 60

Pro Ser Pro Gln Glu Ala Leu Val Arg Leu Arg Glu Thr Glu Glu Met
65 70 75 80

Leu Gly Lys Lys Gln Glu Tyr Leu Glu Asn Arg Ile Gln Arg Glu Ile
85 90 95

Ala Leu Ala Lys Lys Xaa Gly Thr Gln Xaa Lys Arg Gly Ile Xaa Thr
100 105 110

Lys

<210> 1012
<211> 79
<212> PRT
<213> Homo sapiens

<400> 1012
Leu Thr Asp Leu Pro Cys Asn Lys Ile Val Phe Cys Glu Lys Gln Glu
1 5 10 15

Met Asn Asn Asn Ser Val Gly Thr Pro Leu Gln Ile Ser Gln Glu Ile
20 25 30

Gln Lys Asn Cys Glu Gln Val Ala Gly Phe Thr Ile Leu Gln Asp Thr
35 40 45

<210> 1010
<211> 164
<212> PRT
<213> Homo sapiens

<400> 1010
Asp His Pro Ala Glu Glu Leu Gly Gln Ser Ile Cys Ile Cys His Pro
1   5   10   15

Arg Thr Leu Thr Met Lys Thr Leu Leu Leu Leu Ala Val Ile Met Ile
            20   25   30

Phe Gly Leu Leu Gln Ala His Gly Asn Leu Val Asn Phe His Arg Met
        35   40   45

Ile Lys Leu Thr Thr Gly Lys Glu Ala Ala Leu Ser Tyr Gly Phe Tyr
    50   55   60

Gly Cys His Cys Gly Val Gly Gly Arg Gly Ser Pro Lys Asp Ala Thr
65   70   75   80

Asp Arg Cys Cys Val Thr His Asp Cys Cys Tyr Lys Arg Leu Glu Lys
                85   90   95

Arg Gly Cys Gly Thr Lys Phe Leu Ser Tyr Lys Phe Ser Asn Ser Gly
            100   105   110

Ser Arg Ile Thr Cys Ala Lys Gln Asp Ser Cys Arg Ser Gln Leu Cys
        115   120   125

Glu Cys Asp Lys Ala Ala Ala Thr Cys Phe Ala Arg Asn Lys Thr Thr
    130   135   140

Tyr Asn Lys Lys Tyr Gln Tyr Tyr Ser Asn Lys His Cys Arg Gly Ser
145   150   155   160

Thr Pro Arg Cys

<210> 1011
<211> 113
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (102)
<223> Xaa equals any of the naturally occurring L-amino acids

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1008
Arg Glu Glu Ile Met Lys Gly Arg Glu Tyr Gln Glu Ala Gly Xaa Trp
1 5 10 15

Gly Pro Ser Gln Arg Leu Pro Asn Thr Gly Tyr Ser Leu Ala Pro Asp
20 25 30

Asp Ser Cys Ser Phe Gln Met Gln Asn Ala Pro Ser Gln Asp Leu Gln
35 40 45

Lys Ser Tyr Pro Ile Ile Gly Leu Ala Gln Ser Ser Glu Pro Tyr His
50 55 60

Leu Lys Phe Gln Val
65

<210> 1009
<211> 87
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (59)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1009
Val Ile Val Asn Val Leu Asn Tyr Gln Leu Glu Gly Ile Phe Val Leu
1 5 10 15

Lys Val Asp Ile Glu Glu Pro Lys Trp Met Met Gly Phe Gly Ala Ser
20 25 30

Ser Glu Ser Met Phe Pro Leu Lys Tyr Phe Pro Lys Gln Trp Tyr Thr
35 40 45

Trp Leu Phe Tyr Tyr Glu Ile Cys Ile Cys Xaa Val Phe Leu Cys Glu
50 55 60

Gln Cys Phe Ser Leu Ser Val Thr Ile Cys Lys Gly Lys Ser Thr Asn
65 70 75 80

Ile Asp Tyr Ile Ala Gln Asn
85

Asn Ser Ala Ser Thr Thr Ser Pro Ser Gly Arg Ser Ala Asn Asp
210 215 220

<210> 1007
<211> 152
<212> PRT
<213> Homo sapiens

<400> 1007
Phe Gly Thr Ser Phe Cys Trp Cys Tyr Phe Gln Phe Tyr Phe Gln Cys
1 5 10 15

His Asn Arg Val Ile Phe Lys Gln Leu Leu Gln Ala Lys Ala Leu Gln
20 25 30

Phe Leu Gln Ile Asp Ser Cys Arg Leu Gly Ser Val Asn Glu Asn Leu
35 40 45

Ser Val Leu Leu Met Ala Lys Lys Phe Glu Ile Pro Val Cys Pro His
50 55 60

Ala Gly Gly Val Gly Leu Cys Glu Leu Val Gln His Leu Ile Ile Phe
65 70 75 80

Asp Tyr Ile Ser Val Ser Ala Ser Leu Glu Asn Arg Val Cys Glu Tyr
85 90 95

Val Asp His Leu His Glu His Phe Lys Tyr Pro Val Met Ile Gln Arg
100 105 110

Ala Ser Tyr Met Pro Pro Lys Asp Pro Gly Tyr Ser Thr Glu Met Lys
115 120 125

Glu Glu Ser Val Lys Lys His Gln Tyr Pro Asp Gly Glu Val Trp Lys
130 135 140

Lys Leu Leu Pro Ala Gln Glu Asn
145 150

<210> 1008
<211> 69
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (15)

<220>
<221> SITE
<222> (33)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (43)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1006
Leu Asp Lys Lys Arg Lys Lys Asp Met Leu Asn Ser Lys Thr Lys Thr
1 5 10 15

Gln Tyr Phe His Gln Glu Lys Trp Ile Tyr Val His Lys Gly Ser Thr
20 25 30

Xaa Glu Arg His Gly Tyr Cys Thr Leu Gly Xaa Ala Phe Asn Arg Leu
35 40 45

Asp Phe Ser Thr Ala Ile Leu Asp Ser Arg Arg Phe Asn Tyr Val Val
50 55 60

Arg Leu Leu Glu Leu Ile Ala Lys Ser Gln Leu Thr Ser Leu Ser Gly
65 70 75 80

Ile Ala Gln Lys Asn Phe Met Asn Ile Leu Glu Lys Val Val Leu Lys
85 90 95

Val Leu Glu Asp Gln Gln Asn Ile Arg Leu Ile Arg Glu Leu Leu Gln
100 105 110

Thr Leu Tyr Thr Ser Leu Cys Thr Leu Val Gln Arg Val Gly Lys Ser
115 120 125

Val Leu Val Gly Asn Ile Asn Met Trp Val Tyr Arg Met Glu Thr Ile
130 135 140

Leu His Trp Gln Gln Gln Leu Asn Asn Ile Gln Ile Thr Arg Pro Ala
145 150 155 160

Phe Lys Gly Leu Thr Phe Thr Asp Leu Pro Leu Cys Leu Gln Leu Asn
165 170 175

Ile Met Gln Arg Leu Ser Asp Gly Arg Asp Leu Val Ser Leu Gly Gln
180 185 190

Leu Pro Pro Thr Cys Thr Cys Ser Ala Lys Thr Gly Cys Cys Gly Arg
195 200 205

<400> 1004
Ala Gly Thr Leu Thr Pro Ala Tyr Cys Leu Lys Thr Ser Pro Thr Gly
1 5 10 15

Xaa Phe Met Val Ser Tyr Pro Leu Pro His Ile Phe Leu Ala Thr Arg
20 25 30

Gln Glu Thr Tyr Leu Trp His Leu Gln Ile Ser Xaa Ile Xaa Phe Trp
35 40 45

Xaa Phe Pro Cys Leu Ala Ile Cys Phe Ile Glu Trp Val Ser Glu Thr
50 55 60

<210> 1005
<211> 67
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (44)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1005
Ser Ser Lys Phe Arg Ala Ile Asn Pro Ile Ser Val Ile Lys Ser Ser
1 5 10 15

Thr Asp Asn Asn Glu Gln Leu Leu Lys Ser Asn Ile Leu Ser Leu Phe
20 25 30

Thr Asn Val Ser Leu Ser Ile Gly Thr Phe Leu Xaa Tyr Leu Phe Ala
35 40 45

Cys His Tyr Asp Gln Lys Lys Gln Lys Ala Thr Gln Lys Gly Gln Pro
50 55 60

His Ser Lys
65

<210> 1006
<211> 223
<212> PRT
<213> Homo sapiens

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Ser Pro Pro Gln Trp Val Asp His Thr Gly Ala Ala Ser Gln Lys Lys
        35                  40                  45

Ala Phe Arg Ser Ser Gly Phe Gly Leu Glu Phe Asn Ser Phe Gln His
    50                  55                  60

Gln Leu Arg Ile Gln Asp Gln Glu Phe Gln Glu Gly Phe Asp Gly Gly
65                  70                  75                  80

Trp Cys Leu Ser Val His Gln Pro Trp Xaa Ser Leu Leu Val Arg Gly
                85                  90                  95

Ile Lys Arg Val Glu Gly Arg Ser Trp Tyr Thr Pro His Arg Gly Arg
            100                 105                 110

Leu Trp Ile Ala Ala Thr Ala Lys Lys Pro Ser Pro Gln Glu Val Ser
        115                 120                 125

Glu Leu Gln Ala Thr Tyr Arg Leu Leu Arg Gly Lys Asp Val Glu Phe
    130                 135                 140

Pro Asn Asp Tyr Pro Ser Val Val Phe Trp Ala Val Trp Thr
145                 150                 155
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<210> 1004
<211> 64
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (17)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (44)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (46)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (49)
<223> Xaa equals any of the naturally occurring L-amino acids

<210> 1002
<211> 79
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (31)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (69)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1002
Ile Phe Tyr Thr Ile Leu Gln Trp Asp Arg Asn Cys Leu Thr Pro Ala
1 5 10 15

Gly Val Thr Pro His Glu Pro Gln Gly Ser Ser Val Pro Lys Xaa Lys
20 25 30

Lys Gly Asn Arg Trp Pro Pro Pro Leu Pro His Ser Pro Gly Thr Gln
35 40 45

Asp Cys Ser Leu Lys Val Phe Glu Pro Pro Ser Phe Pro Phe Leu Leu
50 55 60

Gly Gly Gln Gly Xaa Leu Asn Ser Arg Ala Leu Pro Val Leu Pro
65 70 75

<210> 1003
<211> 158
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (90)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1003
Ile Arg His Glu Gly Thr Leu Asn Gln Pro Leu Thr Lys Leu Asp Arg
1 5 10 15

Ser Ser Glu Glu Pro Leu Gly Val Leu Val Asn Pro Asn Met Tyr Gln
20 25 30

Ala Ala Ala Gly Val Gly Gly Ser Leu Arg Ala Gln Val Glu Arg Leu
195 200 205

Arg Val Glu Leu Gln Arg Glu Arg Arg Arg Gly Glu Glu Gln Arg Asp
210 215 220

Ser Phe Glu Gly Glu Arg Leu Ala Trp Gln Ala Glu Lys Glu Gln Val
225 230 235 240

Ile Arg Tyr Gln Lys Gln Leu Gln His Asn Tyr Ile Gln Met Tyr Arg
245 250 255

Arg Asn Arg Gln Leu Glu Gln Glu Leu Gln Gln Leu Ser Leu Glu Leu
260 265 270

Glu Ala Arg Glu Leu Ala Asp Leu Gly Leu Ala Glu Gln Pro Pro Ala
275 280 285

Ser Ala Trp Arg Arg Ser Leu Leu Leu Arg Ser Arg Ala Leu Ser Asn
290 295 300

Gln Leu Cys Arg Glu Leu Cys Gln Arg Gly Ser Ser Cys Arg Ser Thr
305 310 315 320

<210> 1001
<211> 70
<212> PRT
<213> Homo sapiens

<400> 1001
Gly Leu Cys Phe Leu Pro Trp Val Gly Phe Ser Ser Met His Val Gly
1 5 10 15

Cys Phe Ser Leu Asn Leu Ile Val Cys Leu Val Cys Phe Pro Pro Phe
20 25 30

Pro Phe Leu Phe Lys Leu Ile His Arg Thr Gln Lys Phe Thr Arg Tyr
35 40 45

Glu His Leu Lys Lys Trp Asn Arg Glu Asn Gly Thr Ser His Val Ile
50 55 60

Lys Ile Asn Ile Val Leu
65 70

Tyr Gly Xaa Gln
65

<210> 1000
<211> 320
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (19)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1000
Arg Pro Cys Glu Arg Thr Val Arg Pro Arg His Ser Gly His Ser Gly
1 5 10 15

Pro Asn Xaa Cys Cys Ser Cys Arg Cys Ser Ser Cys Thr Gly Glu Ala
20 25 30

Ala Ile Ala Gly Arg Leu Arg Thr Ala Ala Ala Gly Ala Arg Thr Ala
35 40 45

Gly Ala Ala Leu Arg His Leu Gly Ala Gly Gln Arg Glu Leu Gly Pro
50 55 60

Arg Leu Glu Glu Thr Lys Trp Glu Val Cys Gln Lys Ser Gly Glu Ile
65 70 75 80

Ser Leu Leu Lys Gln Gln Leu Lys Glu Ser Gln Ala Glu Leu Val Gln
85 90 95

Lys Gly Ser Glu Leu Val Ala Leu Arg Val Ala Leu Arg Glu Ala Arg
100 105 110

Ala Thr Leu Arg Val Ser Glu Gly Arg Ala Arg Gly Leu Gln Glu Ala
115 120 125

Ala Arg Ala Arg Glu Leu Glu Leu Glu Ala Cys Ser Gln Glu Leu Gln
130 135 140

Arg His Arg Gln Glu Ala Glu Gln Leu Arg Glu Lys Ala Gly Gln Leu
145 150 155 160

Asp Ala Glu Ala Ala Gly Leu Arg Glu Pro Pro Val Pro Pro Ala Thr
165 170 175

Ala Asp Pro Phe Leu Leu Ala Glu Ser Asp Glu Ala Lys Val Gln Arg
180 185 190

<221> SITE
<222> (21)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 998
Leu Val Asn Gly Ala Arg Lys Val Thr Gly Gln Arg Thr Gln Met Tyr
1 5 10 15

Arg Xaa Asp Met Xaa Asn Asn Lys Asn Gly Val Asp Gln Glu Ile Ile
20 25 30

Phe Pro Pro Ile Lys Thr Asp Val Ile Thr Met Asp Pro Lys Asp Asn
35 40 45

Cys Ser Lys Asp Ala Asn Asp Thr Leu Leu Leu Gln Leu Thr Asn Thr
50 55 60

Ser Ala Tyr Tyr Met Tyr Leu Leu Leu Leu Leu Lys Ser Val Val Tyr
65 70 75 80

Phe Ala Ile Ile Thr Cys Cys Leu Leu Arg Arg Thr Ala Phe Cys Cys
85 90 95

Asn Gly Glu Lys Ser
100

<210> 999
<211> 68
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (67)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 999
Gly Thr Ser Ala Gly Val Asn Pro Tyr Lys Cys Ser Gln Cys Glu Lys
1 5 10 15

Ser Phe Ser Gly Lys Leu Arg Leu Leu Val His Gln Arg Met His Thr
20 25 30

Arg Glu Lys Pro Tyr Glu Cys Ser Glu Cys Gly Lys Ala Phe Ile Arg
35 40 45

Asn Ser Gln Leu Ile Val His Gln Arg Thr His Ser Gly Glu Lys Pro
50 55 60

<210> 997
<211> 119
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (8)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 997
```
Gly Arg Arg Gln Pro Thr Pro Xaa Thr Ser Pro Glu Pro Pro Arg Ser
  1               5                  10                  15

Ser Pro Arg Gln Thr Pro Ala Pro Gly Pro Ala Arg Glu Lys Ser Ala
             20                  25                  30

Gly Lys Arg Gly Pro Asp Arg Gly Ser Pro Glu Tyr Arg Gln Arg Arg
         35                  40                  45

Glu Arg Asn Asn Ile Ala Val Arg Lys Ser Arg Asp Lys Ala Lys Arg
     50                  55                  60

Arg Asn Gln Glu Met Gln Gln Lys Leu Val Glu Leu Ser Ala Glu Asn
 65                  70                  75                  80

Glu Lys Leu His Gln Arg Val Glu Gln Leu Thr Arg Asp Leu Ala Gly
                 85                  90                  95

Leu Arg Gln Phe Phe Lys Gln Leu Pro Ser Pro Pro Phe Leu Pro Ala
            100                 105                 110

Ala Gly Thr Ala Asp Cys Arg
        115
```

<210> 998
<211> 101
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (18)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE
<222> (173)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (182)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 996
Thr Leu Ser His Gln Val Thr Gln Gln Met Asn Met Leu Ile Gly Val
1 5 10 15

Glu Leu Gln Arg Leu Leu Val Cys Gln Val Phe Leu Phe Ile Gln Leu
20 25 30

Asp Thr Met His Ala Gln Lys Leu Leu Xaa Lys Met Gly Gly Ser Ala
35 40 45

Pro Pro Asp Ser Ser Trp Arg Gly Ser Leu Lys Val Pro Tyr Asn Val
50 55 60

Gly Pro Gly Phe Thr Gly Asn Phe Ser Thr Gln Lys Val Lys Met His
65 70 75 80

Ile His Ser Thr Asn Glu Val Thr Arg Ile Tyr Asn Val Ile Gly Thr
85 90 95

Leu Arg Gly Ala Val Glu Pro Asp Arg Tyr Val Ile Leu Gly Gly His
100 105 110

Arg Asp Ser Trp Val Xaa Gly Gly Ile Asp Pro Gln Ser Gly Ala Ala
115 120 125

Val Val His Glu Ile Val Arg Ser Phe Gly Thr Leu Lys Lys Glu Gly
130 135 140

Trp Arg Pro Arg Arg Thr Ile Leu Phe Ala Ser Trp Asp Ala Glu Glu
145 150 155 160

Phe Gly Leu Leu Gly Ser Thr Glu Trp Ala Glu Xaa Xaa Ser Arg Leu
165 170 175

Leu Gln Glu Arg Gly Xaa Gly Phe Ile Leu Asn Ala Asp Ser Ser Ile
180 185 190

Gly Arg Lys Leu His Ser Glu Glu Leu Asp Cys Thr Pro Leu Asp Val
195 200 205

Gln Leu Gly Thr Gln Pro Tyr Gln Arg Ala
210 215

```
Pro Ala Gln Thr Gly Ser Trp Ala Leu Phe Cys Leu Ser Gln Pro His
        35                  40                  45

Ser Lys Pro Xaa Pro Pro Ala Pro Pro Tyr Cys Asn Ser Pro His Ser
    50                  55                  60

His Thr Arg Ser Pro Leu Pro Pro Thr Tyr Xaa Arg Xaa Phe Ser Pro
65                  70                  75                  80

Leu Pro Ser Gln Leu Pro Ala Pro Ser Cys Phe Thr Lys Gly Glu Val
                85                  90                  95

Pro Gly His Leu Arg Val Ser Leu Cys Gly Ala Gln Asn Leu Gln Gly
            100                 105                 110

Pro Leu Ser Met Pro Leu Val Pro Trp Thr Val Ser Leu Val His Leu
        115                 120                 125

Leu Ser Pro Ser Ile Leu Ser Gln Ser Thr Asp Phe Ser His Ser Ala
    130                 135                 140

Val Ser Val Gln Pro Tyr Pro Arg Asp Leu Asp Ala Trp Pro Pro Asn
145                 150                 155                 160

Leu Ala Leu Gly Tyr Pro Asp Ala Asn Gln Thr Pro Pro Ser Ser
                165                 170                 175


<210> 996
<211> 218
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (42)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (118)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (172)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
```

<210> 994
<211> 29
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (17)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 994
Met Leu His Gly Ile Thr Ser Phe Ile Leu Tyr Lys Ser Ile Met Cys
1 5 10 15

Xaa Glu Leu Lys Thr Ser Leu Gly Asn Ile Asn Ser Ser
20 25

<210> 995
<211> 175
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (27)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (52)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (75)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (77)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 995
Arg Gly Leu Val Arg Gly Ala Met Val Gly Gly Met Gln Glu Arg Glu
1 5 10 15

Pro Ala Leu Thr Val Lys Leu Arg Leu Phe Xaa Pro Gln Pro Ser Thr
20 25 30

180 185 190

Cys Lys Glu Ala Gly Val Gln Lys Leu Ile Leu Thr Ser Ser Ala Ser
195 200 205

Val Ile Phe Glu Gly Val Asp Ile Lys Asn Gly Thr Glu Asp Leu Pro
210 215 220

Tyr Ala Met Lys Pro Ile Asp Tyr Tyr Thr Glu Thr Lys Ile Leu Gln
225 230 235 240

Glu Arg Ala Val Leu Gly Ala Asn Asp Pro Glu Lys Asn Phe Leu Thr
245 250 255

Thr Ala Ile Arg Pro His Gly Ile Phe Gly Pro Arg Asp Pro Gln Leu
260 265 270

Val Pro Ile Leu Ile Glu Ala Ala Arg Asn Gly Lys Met Lys Phe Val
275 280 285

Ile Gly Asn Gly Lys Asn Leu Val Asp Phe Thr Phe Val Glu Asn Val
290 295 300

Val His Gly His Ile Leu Ala Ala Glu Gln Leu Ser Arg Asp Ser Thr
305 310 315 320

Leu Gly Gly Lys Ala Phe His Ile Thr Asn Asp Glu Pro Ile Pro Phe
325 330 335

Trp Thr Phe Leu Ser Arg Ile Leu Thr Gly Leu Asn Tyr Glu Ala Pro
340 345 350

Lys Tyr His Ile Pro Tyr Trp Val Ala Tyr Tyr Leu Ala Leu Leu Leu
355 360 365

Ser Leu Leu Val Met Val Ile Ser Pro Val Ile Gln Leu Gln Pro Thr
370 375 380

Phe Thr Pro Met Arg Val Ala Leu Ala Gly Thr Phe His Tyr Tyr Ser
385 390 395 400

Cys Glu Arg Ala Lys Lys Ala Met Gly Tyr Gln Pro Leu Val Thr Met
405 410 415

Asp Asp Ala Met Glu Arg Thr Val Gln Ser Phe Arg His Leu Arg Arg
420 425 430

Val Lys

<220>
<221> SITE
<222> (25)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (95)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (99)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 993
```
Ser Gly Pro Gly Val Gln Trp Val Gln Pro Ala Cys Xaa Leu Arg Pro
  1               5                  10                  15

Asp Arg Gly Ala Pro Thr Asp Gly Xaa Gly Gly Ala Leu Gln Ala Glu
             20                  25                  30

Thr Pro Ser Ser Ala Glu Ser Gln Glu Phe Trp Glu Val Lys Arg Lys
         35                  40                  45

Glu Lys Leu Ile Thr Asn Gly Thr Ile Phe Cys Phe Glu Met Glu Pro
     50                  55                  60

Ala Val Ser Glu Pro Met Arg Asp Gln Val Ala Arg Thr His Leu Thr
 65                  70                  75                  80

Glu Asp Thr Pro Lys Val Asn Ala Asp Ile Glu Lys Val Asn Xaa Asn
                 85                  90                  95

Gln Ala Xaa Arg Cys Thr Val Ile Gly Gly Ser Gly Phe Leu Gly Gln
            100                 105                 110

His Met Val Glu Gln Leu Leu Ala Arg Gly Tyr Ala Val Asn Val Phe
        115                 120                 125

Asp Ile Gln Gln Gly Phe Asp Asn Pro Gln Val Arg Phe Phe Leu Gly
    130                 135                 140

Asp Leu Cys Ser Arg Gln Asp Leu Tyr Pro Ala Leu Lys Gly Val Asn
145                 150                 155                 160

Thr Val Phe His Cys Ala Ser Pro Pro Pro Ser Ser Asn Asn Lys Glu
                165                 170                 175

Leu Phe Tyr Arg Val Asn Tyr Ile Gly Thr Lys Asn Val Ile Glu Thr
```

Ala Lys Asp Lys Thr Gln Glu Lys Ile Glu Thr Ser Ser Asn His Ser
130 135 140

Gln Ala Ser Ser Val Asn Xaa Thr Asp Asp Glu Lys Ala Ser His Ala
145 150 155 160

Gly Pro Ala Asn Thr His Leu Lys Ser Glu Asn Asp Lys Leu Lys Ile
165 170 175

Ala Leu Thr Gln Ser Ala Pro Thr
180

<210> 992
<211> 66
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (22)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 992
Pro Cys His Leu Gln His Glu Glu Ser Leu Ser Gly Val Lys Val Asn
1 5 10 15

Glu Thr Asn Arg Asp Xaa Arg Pro Gly Glu Ile Leu Val Thr Leu Leu
20 25 30

Glu Ser Cys Gln Ser Tyr Thr Gly Val Leu Leu Ile Gln Asn Asn Ser
35 40 45

Asn Asn Pro Ser Val Ser Tyr Val Tyr Ala Asn Phe Asn Lys Lys Lys
50 55 60

Leu Asp
65

<210> 993
<211> 434
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (13)
<223> Xaa equals any of the naturally occurring L-amino acids

```
Ser Thr Arg Ala Gln Arg Ser Cys Gln Trp Pro Val Ala Leu Pro Pro
     50                  55                  60

Phe Pro Glu Arg Gly Ser Arg Gly His Pro Gly Arg Leu Gly Pro Gly
 65                  70                  75                  80

Pro Pro Ser Ala Leu Ala Ser
                85
```

<210> 991
<211> 184
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (46)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (151)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 991

```
Phe Ala Thr Asp Arg Phe Phe Lys Cys Trp His Asn Ala Gln Ser Ser
  1               5                  10                  15

Met Arg Glu Gln Pro Ile Phe Thr Thr Arg Ala His Val Phe Gln Ile
             20                  25                  30

Asp Pro Asn Thr Lys Lys Asn Trp Met Pro Ala Ser Lys Xaa Ala Val
         35                  40                  45

Thr Val Ser Tyr Phe Tyr Asp Val Thr Arg Asn Ser Tyr Arg Ile Ile
     50                  55                  60

Ser Val Asp Gly Ala Lys Val Ile Ile Asn Ser Thr Ile Thr Pro Asn
 65                  70                  75                  80

Met Thr Phe Thr Lys Thr Ser Gln Lys Phe Gly Gln Trp Ala Asp Ser
                 85                  90                  95

Arg Ala Asn Thr Val Phe Gly Leu Gly Phe Ser Ser Glu Gln Gln Leu
            100                 105                 110

Thr Lys Phe Ala Glu Lys Phe Gln Glu Val Lys Glu Ala Ala Lys Ile
        115                 120                 125
```

<210> 989
<211> 92
<212> PRT
<213> Homo sapiens

<400> 989
Arg Met Lys Arg Ser Arg Arg Trp Ser Arg Tyr Lys Ala Leu Asn Ala
1 5 10 15

Gly Arg Thr Ser Lys Arg Ile His Lys Gly Leu Val Val Arg Lys Gly
20 25 30

Trp Leu Gly Lys Leu Pro Ser Leu Pro Leu Arg Trp Arg Ala Arg Gly
35 40 45

Val Met Thr Leu Met Phe Ile Leu Leu Ala Ala Met Leu Trp Phe Val
50 55 60

Ala Ala Pro Val Val Thr Tyr Ile Leu Cys Ala Leu Val Val Leu Leu
65 70 75 80

Ala Ala Pro Val Leu Asn Gly Arg Leu Tyr Ala Arg
85 90

<210> 990
<211> 87
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (33)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (35)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 990
Ser Gly Leu Ile Pro Phe Pro Phe Gln Arg Ile Ala Lys Lys Lys Leu
1 5 10 15

Thr Val Glu Ala Gly Cys Ser Glu Val Gly Cys Gly Val Gly Gly Thr
20 25 30

Xaa Gly Xaa Ala Leu Trp Ala Gly Ala Gly Gly Phe Glu Gly Leu Ser
35 40 45

Ser Phe Ile Asn Tyr Pro Val Ser Gly Ser Phe Leu Ile Ala Val
50 55 60

<210> 987
<211> 90
<212> PRT
<213> Homo sapiens

<400> 987
His His Arg Ile Asn Cys Val His Leu Tyr His Cys Phe Thr Ser Leu
1 5 10 15

Trp Trp Ile Tyr Met Ala Lys Leu Cys Glu Glu Ile Gly Lys Lys Lys
20 25 30

Leu Pro Leu Thr Lys Asp Met Arg Glu Gln Gly Val Lys Ser Asn Pro
35 40 45

Cys Asp Ser Ser Leu Ser His Thr Asp Arg Trp Tyr Leu Pro Val Ser
50 55 60

Ser Thr Leu Phe Ser Leu Phe Lys Ile Leu Phe His Ala Ser Arg Phe
65 70 75 80

Ile Phe Val Leu Ser Thr Ser Leu Phe Leu
85 90

<210> 988
<211> 50
<212> PRT
<213> Homo sapiens

<400> 988
Ala Gln Glu Glu Lys Lys Pro Tyr Leu Cys Ser Arg Phe Cys Lys Gly
1 5 10 15

Glu Ile Ser Thr Glu Arg Asn His Cys Tyr Thr Ser Ala Lys Thr Gln
20 25 30

Gly Leu Gly Asp Leu Phe Leu Phe Ile Cys Phe Gly Tyr Leu Ala Ser
35 40 45

Phe Ser
50

65 70 75 80

Pro Val Pro Pro Leu Ala Ser Leu Ser Phe Ala Gln Lys Thr Asn Asn
85 90 95

His Thr Tyr Pro Asn Trp Asp Thr Thr Leu Gln Asn Ala Asp Asp Pro
100 105 110

Phe Trp Arg Lys Leu Ser Leu Glu Leu Ser Glu Leu Pro Gly Lys Gln
115 120 125

Gly Ile Trp Pro Thr Ser Leu Thr Thr Ala Ala Pro Thr Ser Pro Arg
130 135 140

Thr Gly Ala Ser Ala Leu Thr Glu Val Gly Arg Pro Lys Thr
145 150 155

<210> 985
<211> 40
<212> PRT
<213> Homo sapiens

<400> 985
Arg Trp Gly Cys Pro Gly Trp Ser Gln Thr Pro Glu Leu Lys Gln Cys
1 5 10 15

Ala Arg Leu Gly Phe Pro Lys Cys Trp Asp Tyr Arg Arg Lys Pro Leu
20 25 30

His Ala Ala Tyr Pro Leu Pro Phe
35 40

<210> 986
<211> 63
<212> PRT
<213> Homo sapiens

<400> 986
Val Phe Gly Ser Phe Ser Cys Ile His Ser Pro Ser Cys His Leu Val
1 5 10 15

Lys Lys Val Pro Trp Phe Pro Phe Thr Phe Asn His Asp Cys Lys Phe
20 25 30

Pro Glu Ala Pro Pro Ala Met Gly Asp Cys Glu Ser Ile Lys Pro Leu
35 40 45

Phe Ser Leu Ser Leu Ser Met Thr Pro Gln Leu Leu Leu Ala Leu Val
1 5 10 15

Leu Trp Ala Ser Cys Pro Pro Cys Ser Gly Arg Lys Gly Pro Pro Ala
20 25 30

Ala Leu Thr Leu Pro Arg Val Gln Cys Arg Ala Ser Arg Tyr Pro Ile
35 40 45

Ala Val Asp Cys Ser Trp Thr Leu Pro Pro Ala Pro Asn Ser Thr Ser
50 55 60

Pro Val Ser Phe Ile Ala Thr Tyr Arg Leu Gly Met Ala Ala Arg Gly
65 70 75 80

His Ser Trp Pro Cys Leu Gln Gln Thr Pro Thr Ser Thr Ser Cys Thr
85 90 95

Ile Thr Asp Val Gln Leu Phe Ser Met Ala Pro Tyr Val Leu Asn Val
100 105 110

Thr Ala Val His Pro Trp Gly Ser Ser Ser Ser Phe Val Pro Phe Ile
115 120 125

Thr Glu His Ile Ile Lys Pro Asp Pro Pro Glu Gly Val Arg Leu Ser
130 135 140

Pro Leu Ala Glu Arg Xaa
145 150

<210> 984
<211> 158
<212> PRT
<213> Homo sapiens

<400> 984
Arg Leu Cys Trp Val Lys Thr Leu Gln His Leu Leu Leu Arg Ser Thr
1 5 10 15

His Lys Asp Gln Val Gln His Arg Gly Leu Gly Thr Ser Leu Ala Ser
20 25 30

Gly Pro His Leu Thr Val Arg Gln Gln Leu Pro Ser Pro Ala Met Cys
35 40 45

Leu Leu Ser Gly Ser Ser Cys Leu Lys Leu Thr Ser Thr Phe Phe Pro
50 55 60

Asp Gly Gln Val Ala Glu Gly Pro Ala Ile Ser Val Ala Cys Cys His

Glu Leu Gln Arg His Glu Leu Ser Ser Lys Leu Leu Gln Pro Leu Val
    130   135   140

Pro Arg Tyr Glu Glu Ala Leu Ser Gln Leu Glu Glu Ser Val Lys Glu
145   150   155   160

Glu Xaa Lys Gln Arg Ala Ala
                165

<210> 982
<211> 108
<212> PRT
<213> Homo sapiens

<400> 982
Ala Asn Glu Pro Gln Phe Leu Ala Val Tyr Lys Lys Ser Leu Asn Ala
  1   5   10   15

Asn Glu Glu Phe Lys Gly Leu Phe Lys Glu Met Lys Gly Phe Pro Asn
             20   25   30

Arg Met Ile Tyr Ser Glu Glu Thr Asn Asn Gly Ile Ser Glu Thr His
         35   40   45

Asn Leu Lys Pro Asn Leu Glu Asn Met Leu Cys Thr Lys Thr Thr Ala
     50   55   60

Ser Ala Ser Ser Leu Ile Leu Thr Phe Phe Asn Arg Tyr Leu Leu Asn
 65   70   75   80

Cys Pro Val Lys Arg Cys His Asn Ala Gln Tyr Cys Lys Gln Gln Val
                 85   90   95

Cys Ile His Glu Ala Phe Ile His Ser Gly Val Tyr
            100   105

<210> 983
<211> 150
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (150)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 983

Lys Thr Leu Gln Pro Trp Val Ala Arg Leu Asp Glu Met Glu Arg Gly
65 70 75 80

Leu Phe Gln Thr Gly Gln Lys Gly Leu Asn Asp Phe Gln Cys Trp Glu
85 90 95

Lys Gly Gln Ala Ser Gln Ile Thr Ala Ser Asn Leu Val Gln Asn
100 105 110

<210> 981
<211> 167
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (70)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (162)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 981
Trp Arg Met Gly Phe Ser Arg Val Leu Cys Phe Thr Asn Ser Arg Glu
1 5 10 15

Asn Ser His Arg Leu Phe Leu Leu Val Gln Ala Phe Gly Gly Val Asp
20 25 30

Val Ala Glu Phe Ser Ser Arg Tyr Gly Pro Gly Gln Arg Arg Met Ile
35 40 45

Leu Lys Gln Phe Glu Gln Gly Lys Ile Gln Leu Leu Ile Ser Thr Asp
50 55 60

Ala Thr Ala Arg Gly Xaa Asp Val Gln Gly Val Glu Leu Val Val Asn
65 70 75 80

Tyr Asp Ala Pro Gln Tyr Leu Arg Thr Tyr Val His Arg Val Gly Arg
85 90 95

Thr Ala Arg Ala Gly Lys Thr Gly Gln Ala Phe Thr Leu Leu Leu Lys
100 105 110

Val Gln Glu Arg Arg Phe Leu Arg Met Leu Thr Glu Ala Gly Ala Pro
115 120 125

```
 1               5                   10                  15
Lys Gln Gly Gly Lys Ala Arg Ala Lys Ala Lys Ser Arg Ser Ser Arg
             20                  25                  30
Ala Gly Leu Gln Phe Pro Val Gly Arg Val His Arg Leu Leu Arg Lys
         35                  40                  45
Gly Asn Tyr Ala Glu Arg Val Gly Ala Gly Ala Pro Val Tyr Leu Ala
     50                  55                  60
Ala Val Leu Glu Tyr Leu Thr Ala Glu Ile Leu Glu Leu Ala Gly Asn
 65                  70                  75                  80
Ala Ala Arg Asp Asn Lys Lys Thr Arg Ile Ile Pro Arg His Leu Gln
                 85                  90                  95
Leu Ala Ile Arg Asn Asp Glu Glu Leu Asn Lys Leu Leu Gly Arg Val
            100                 105                 110
Thr Ile Ala Gln Gly Gly Val Leu Pro Asn Ile Gln Ala Val Leu Leu
        115                 120                 125
Pro Lys Lys Thr Glu Ser His His Lys Ala Lys Gly Lys
    130                 135                 140


<210> 980
<211> 111
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (35)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 980
Gly Glu Leu Ser Phe Phe Gly Arg His Pro Asp Val Pro Arg Glu Ala
 1               5                   10                  15
Ala Gly Ala His Gly Asp Arg His Ala Ser Pro Trp Ala Phe Phe Leu
             20                  25                  30
Glu Arg Xaa Lys Ala Pro Arg Leu Thr Thr Arg Ser His Arg Leu Leu
         35                  40                  45
Ser Asp Val Phe Ala Ala Ser Trp Thr Pro His Arg Met Leu Thr Thr
     50                  55                  60
```

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 978
Leu Trp Glu Leu Lys Lys Leu Ser Val His Phe His Pro Ser Val Ala
1   5   10   15

Leu Phe Ala Lys Thr Ile Leu Gln Gly Asn Tyr Ile Gln Tyr Ser Gly
            20   25   30

Asp Pro Leu Gln Asp Phe Thr Leu Met Arg Phe Leu Asp Arg Phe Val
        35   40   45

Tyr Arg Asn Pro Lys Pro His Lys Gly Lys Glu Asn Thr Asp Ser Val
    50   55   60

Val Met Gln Pro Lys Arg Lys His Phe Ile Lys Asp Ile Arg His Leu
65   70   75   80

Pro Val Asn Ser Lys Glu Phe Leu Ala Lys Glu Glu Ser Gln Ile Pro
                85   90   95

Val Asp Glu Val Phe Phe His Arg Tyr Tyr Lys Lys Val Ala Val Lys
            100   105   110

Glu Lys Gln Lys Arg Asp Ala Asp Glu Glu Ser Ile Glu Asp Val Asp
        115   120   125

Asp Glu Glu Phe Glu Glu Leu Ile Asp Thr Phe Glu Asp Asp Asn Cys
    130   135   140

Phe Ser Ser Gly Lys Asp Asp Met Asp Phe Ala Gly Asn Val Lys Lys
145   150   155   160

Arg Thr Lys Gly Ala Lys Asp Asn Thr Leu Asp Glu Asp Ser Glu Gly
                165   170   175

Ser Asp Asp Glu Leu Gly Asn Leu Asp Asp Asp Xaa Ser Phe Phe Arg
            180   185   190

Glu Val Trp Met Met Glu Glu Phe Ala Gly Ser
        195   200

<210> 979
<211> 141
<212> PRT
<213> Homo sapiens

<400> 979
Ala Ala Gly Phe Gly Asp Phe Cys Leu Ile Ala Met Ser Gly Arg Gly

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 976

Ser Ser Glu Leu Leu Leu His Ser Phe Leu Gly Ser Val Ser Ser Gln
1 5 10 15

Asn His Arg Tyr Pro Xaa Xaa Ser Gln Thr Thr Ala Leu Gly Glu Gly
20 25 30

Thr Ile Arg Phe Thr Xaa Gly Phe His Thr Leu Met Leu Leu Ala Phe
35 40 45

Asn Leu Thr Thr Leu Asp Cys Gln Val Phe Thr Asp Xaa Trp Thr Trp
50 55 60

Ile Gln Asp Trp Glu Cys Xaa Gly Met Val Trp Gln Gln Cys Leu Leu
65 70 75 80

<210> 977
<211> 59
<212> PRT
<213> Homo sapiens

<400> 977

Thr Asp Asp Glu Phe Ser Gln Met Thr Leu Arg Asn Cys Phe Thr Lys
1 5 10 15

Asn Lys Val Ile Tyr Leu Leu Trp Glu Glu Leu Pro Ser Phe Cys Phe
20 25 30

Ser Ser Leu Pro Pro Phe Pro Cys Gly Cys Arg Ala Arg Ser Val Arg
35 40 45

Ser Trp Phe Cys Pro Ala Met Ile Arg Glu Ser
50 55

<210> 978
<211> 203
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (188)

```
Asp Pro Ser Ser Gly Gln Leu Val Ser Gly Gly Val Ala Glu Glu Ala
     50                  55                  60

Lys Gln Ala Leu Lys Asn Met Gly Glu Ile Leu Lys Ala Ala Gly Cys
 65                  70                  75                  80

Asp Phe Thr Asn Val Val Lys Thr Thr Val Leu Leu Ala Asp Ile Asn
                 85                  90                  95

Asp Phe Asn Thr Val Asn Glu Ile Tyr Lys Gln Tyr Phe Lys Ser Asn
            100                 105                 110

Phe Pro Ala Arg Ala Ala Tyr Gln Val Ala Ala Leu Pro Lys Gly Ser
        115                 120                 125

Arg Ile Glu Ile Glu Ala Val Ala Ile Gln Gly Pro Leu Thr Thr Ala
    130                 135                 140

Ser Leu
145



<210> 976
<211> 80
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (22)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (23)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (38)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (61)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (71)
```

Asn Phe Gln Leu Glu Glu Glu Glu Gln Asn Glu Ala Lys Leu Lys Glu
195 200 205

Lys Gln Ile Gln Arg Thr Lys Arg Gly Leu Glu Ile Leu Ala Lys Arg
210 215 220

Ala Ala Glu Thr Val Val Asp Pro Glu Met Thr Pro Tyr Leu Asp Ile
225 230 235 240

Ala Asn Gln Thr Gly Arg Ser Ile Arg Ile Pro Pro Ser Glu Arg Lys
245 250 255

Ala Leu Met Leu Ala Met Gly Tyr His Glu Lys Gly Arg Ala Phe Leu
260 265 270

Lys Arg Lys Glu Tyr Gly Ile Ala Leu Pro Cys Leu Leu Asp Ala Asp
275 280 285

Lys Tyr Phe Cys Glu Cys Cys Arg Xaa Leu Leu Asp Thr Val Asp Asn
290 295 300

Tyr Ala Val Leu Gln Leu Asp Ile Val Trp Cys Xaa Phe Arg Leu Glu
305 310 315 320

Xaa Leu Glu Cys Leu Asp Asp Ala Glu Lys Lys Leu Asn Leu Xaa Gln
325 330 335

Lys Cys Phe Lys Asn Cys Tyr Gly Glu Asn Xaa Gln Arg Leu Val His
340 345 350

Ile Lys Val Cys Ser Trp Glu Phe Ile Leu Xaa Ala Arg
355 360 365

<210> 975
<211> 146
<212> PRT
<213> Homo sapiens

<400> 975
Arg Gly Cys Lys Arg Glu Gly Leu Ala Met Ser Ser Leu Ile Arg Arg
1 5 10 15

Val Ile Ser Thr Ala Lys Ala Pro Gly Ala Ile Gly Pro Tyr Ser Gln
20 25 30

Ala Val Leu Val Asp Arg Thr Ile Tyr Ile Ser Gly Gln Ile Gly Met
35 40 45

<220>
<221> SITE
<222> (335)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (347)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (363)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 974

```
Gly Met Lys Thr Asn Gly Gly Arg Cys Arg Val Arg Ala Leu Cys Trp
  1               5                  10                  15

Ser Arg Arg Glu Trp Arg Gly Ala Gly Met Ala Gln Lys Lys Tyr Leu
             20                  25                  30

Gln Ala Lys Leu Thr Gln Phe Leu Arg Glu Asp Arg Ile Gln Leu Trp
         35                  40                  45

Lys Pro Pro Tyr Thr Asp Glu Asn Lys Lys Val Gly Leu Ala Leu Lys
     50                  55                  60

Asp Leu Ala Lys Gln Tyr Ser Asp Arg Leu Glu Cys Cys Glu Asn Glu
 65                  70                  75                  80

Val Glu Lys Val Ile Glu Glu Ile Arg Cys Lys Ala Ile Glu Arg Gly
                 85                  90                  95

Thr Gly Asn Asp Asn Tyr Arg Thr Thr Gly Ile Ala Thr Ile Glu Val
            100                 105                 110

Phe Leu Pro Pro Arg Leu Lys Lys Asp Arg Lys Asn Leu Leu Glu Thr
        115                 120                 125

Arg Leu His Ile Thr Gly Arg Glu Leu Arg Ser Lys Ile Ala Glu Thr
    130                 135                 140

Phe Gly Leu Gln Glu Asn Tyr Ile Lys Ile Val Ile Asn Lys Lys Gln
145                 150                 155                 160

Leu Gln Leu Gly Lys Thr Leu Glu Glu Gln Gly Val Ala His Asn Val
                165                 170                 175

Lys Ala Met Val Leu Glu Leu Lys Gln Ser Glu Glu Asp Ala Arg Lys
            180                 185                 190
```

<210> 973
<211> 102
<212> PRT
<213> Homo sapiens

<400> 973
Val Val Leu Phe Glu His Lys Leu His Phe Tyr Phe Leu Met Gln Arg
1   5   10   15

Met Asn Lys Leu Asn Thr Cys Phe Glu Asp Arg Ser Arg Cys Ser Val
            20   25   30

Trp His His Val Ile Ile Cys Leu Phe Tyr Asn Ile His Val Ser Leu
        35   40   45

Arg Asn His Gly Arg Asp Val Arg Ala Glu Tyr Thr Gln Gln Met Leu
    50   55   60

Lys Glu Lys Glu Gly Ser Val Leu Gln Lys Lys Lys Lys Arg Thr Asn
65   70   75   80

Arg Ile Leu Thr Leu Leu Thr Phe Pro Asn Phe Pro Met Leu Leu Val
                85   90   95

Asn Ile Ile Ile Val Ser
            100

<210> 974
<211> 365
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (297)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (316)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (321)
<223> Xaa equals any of the naturally occurring L-amino acids

```
  1               5                   10                  15
Xaa Glu Phe Leu Lys Leu Ser Leu Leu Arg Met Val Leu Leu Pro Ala
            20                  25                  30
Asp Ser Tyr Leu Phe Val Phe Ser Ser Phe
        35                  40


<210> 971
<211> 67
<212> PRT
<213> Homo sapiens

<400> 971
Gln Lys Asp Arg Glu Ile Arg Ile Phe Cys Ala Glu Ser Pro Lys Phe
  1               5                   10                  15
Pro Pro Glu Cys Asn Leu Gln Leu Pro Tyr Leu Leu Ser His Met Pro
            20                  25                  30
Ser Asn Met Leu Asp Trp Leu Ile His Arg Pro Thr Gln Asn Thr Asn
        35                  40                  45
Val Thr Cys Ser Cys Ser Leu Val Ala Ile Cys Leu Phe Ser Met Tyr
    50                  55                  60
Pro Ala Trp
 65


<210> 972
<211> 54
<212> PRT
<213> Homo sapiens

<400> 972
Ile Val Phe Phe Phe Ser Leu Phe Tyr Lys Cys Gln Phe Asn Ser Arg
  1               5                   10                  15
Ala Leu Ala Gln Tyr Phe Leu Met Ile Phe Ser Pro Arg Lys Arg Arg
            20                  25                  30
Lys Ser Leu Leu Val Thr Gln Leu Arg Cys Gln Thr Ser Ser Glu Thr
        35                  40                  45
Cys Thr Val Ala Ala Tyr
    50
```

Lys Val Ala Arg Arg His Arg Met Xaa Pro Phe Pro Leu Thr Ser Met
130 135 140

Asp Lys Ala Phe Ile Thr Val Leu Glu Met Thr Pro Val Leu Gly Thr
145 150 155 160

Glu Ile Ile Asn Tyr Arg Asp Gly Met Gly Arg Val Leu Ala Gln Asp
165 170 175

Val Tyr Ala Lys Asp Asn Leu Pro Pro Phe Pro Ala Ser Val Lys Asp
180 185 190

Gly Tyr Ala Val Arg Ala Ala Asp Gly Pro Gly Asp Arg Phe Ile Ile
195 200 205

Gly Glu Ser Gln Ala Gly Glu Gln Pro Thr Gln Thr Val Met Pro Gly
210 215 220

Gln Val Met Arg Val Thr Thr Gly Ala Pro Ile Pro Cys Gly Ala Asp
225 230 235 240

Ala Val Val Gln Val Glu Asp Thr Glu Leu Ile Arg Glu Ser Asp Asp
245 250 255

Gly Thr Glu Glu Leu Glu Val Arg Ile Leu Val Gln Ala Arg Pro Gly
260 265 270

Gln Asp Ile Arg Pro Ile Gly His Asp Ile Lys Arg Gly Glu Cys Val
275 280 285

Leu Ala Lys Gly Thr His Met Gly Pro Ser Glu Ile Gly Leu Leu Ala
290 295 300

Thr Val Gly Val Thr Glu Val Xaa Xaa
305 310

<210> 970
<211> 42
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (17)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 970
His Met Lys Lys Gln Leu Leu Val Pro Asp Tyr Gly His Phe His Val

<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (62)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (121)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (137)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (312)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (313)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 969

```
Glu Glu Glu Lys Lys Asp Ser Gly Val Ala Ser Thr Glu Asp Ser Ser
  1               5                  10                  15

Ser Ser His Ile Thr Ala Ala Ala Ile Ala Ala Lys Lys His Pro Phe
             20                  25                  30

Tyr Thr Xaa Pro Ala Val Val Met Ala His Gly Glu Gln Pro Ile Pro
         35                  40                  45

Gly Leu Ile Asn Tyr Ser His His Ser Thr Asp Glu Arg Xaa Pro Asp
     50                  55                  60

Ser Ile Ile Ser Arg Gly Val Gln Val Leu Pro Arg Asp Thr Ala Ser
 65                  70                  75                  80

Leu Ser Thr Thr Pro Ser Glu Ser Pro Arg Ala Gln Ala Thr Ser Arg
                 85                  90                  95

Leu Ser Thr Ala Ser Cys Pro Thr Pro Lys Val Gln Ser Arg Cys Ser
            100                 105                 110

Ser Lys Glu Asn Ile Leu Arg Ala Xaa His Ser Ala Val Asp Ile Thr
        115                 120                 125
```

85 90 95

Gln Pro Arg Pro Gly Val Ile Arg Ala Leu Gly Pro Pro Pro Gly Val
100 105 110

Arg Arg Arg Pro Cys Glu Gln Ile Ser Pro Glu Glu Glu Glu Arg Arg
115 120 125

Arg Val Arg Arg Glu Arg Asn Lys Leu Ala Ala Ala Lys Cys Arg Asn
130 135 140

Arg Arg Lys Glu Leu Thr Asp Phe Leu Gln Ala Glu Thr Asp Lys Leu
145 150 155 160

Glu Asp Glu Lys Ser Gly Leu Gln Arg Glu Ile Glu Glu Leu Gln Lys
165 170 175

Gln Lys Glu Arg Leu Glu Leu Val Leu Glu Ala His Arg Pro Ile Cys
180 185 190

Lys Ile Pro Glu Gly Ala Lys Glu Gly Asp Thr Gly Ser Thr Ser Gly
195 200 205

Thr Ser Ser Pro Pro Ala Pro Cys Arg Pro Val Pro Cys Ile Ser Leu
210 215 220

Ser Pro Gly Pro Val Leu Glu Pro Glu Ala Leu His Thr Pro Thr Leu
225 230 235 240

Met Thr Thr Pro Ser Leu Thr Pro Phe Thr Pro Ser Leu Val Phe Thr
245 250 255

Tyr Pro Ser Thr Pro Glu Pro Cys Ala Ser Ala His Arg Lys Ser Ser
260 265 270

Ser Ser Ser Gly Asp Pro Ser Ser Asp Pro Leu Gly Ser Pro Thr Leu
275 280 285

Leu Ala Leu
290

<210> 969
<211> 313
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (35)

Pro Ser Trp Asn Gln Gly Gln Arg Leu Ser Pro Thr Leu Val Ser Ile
50 55 60

Phe Gln Lys Thr Gly Asn Ala Val Arg Ala Ile Gly Arg Leu Ser Ser
65 70 75 80

Met Ala Met Ile Ser Gly Leu Ser Gly Arg Lys Ser Ser Thr Gly Ser
85 90 95

Pro Thr Ser Pro Leu Asn Ala Glu Lys Leu Glu Ser Glu Glu Asp Val
100 105 110

Ser Gln Ala Phe Leu Glu Ala Val Ala Glu Glu Lys Pro His Val Lys
115 120 125

Pro Tyr Phe Ser Lys Thr Ile Arg Asp Leu Glu Val Val Glu Gly Ser
130 135 140

Ala Ala Arg Phe Asp Cys Lys Ile Glu Gly Tyr Pro Asp Pro Glu Val
145 150 155 160

Val Trp Xaa Gln Arg Trp Thr Ser Ser Ile Arg Glu Ser Arg Xaa Phe
165 170 175

Pro Asp Arg Leu Arg
180

<210> 968
<211> 291
<212> PRT
<213> Homo sapiens

<400> 968
His Gly Ala Gly Glu Ser Glu Pro Ser Ser Arg Val Pro Arg Arg Ala
1 5 10 15

Ala Ser Pro Gly His Val Pro Arg Leu Arg Gly Thr Arg Pro Glu Leu
20 25 30

Arg Glu Arg Arg Arg Val Arg Arg Pro Arg Ala Pro Pro Ala Ala Ala
35 40 45

Gln Ala Ala Gln Gln Lys Phe His Leu Val Pro Ser Ile Asn Thr Met
50 55 60

Ser Gly Ser Gln Glu Leu Gln Trp Met Val Gln Pro His Phe Leu Gly
65 70 75 80

Pro Ser Ser Tyr Pro Arg Pro Leu Thr Tyr Pro Gln Tyr Ser Pro Pro

Leu Tyr Val Trp Ala Gln Leu Asn Arg Asp Met Ile Val Ser Phe Trp
195 200 205

Phe Gly Thr Arg Phe Lys Ala Cys Tyr Leu Pro Trp Val Ile Leu Gly
210 215 220

Phe Asn Tyr Ile Ile Gly Gly Ser Val Ile Asn Glu Leu Ile Gly Asn
225 230 235 240

Leu Val Gly His Leu Tyr Phe Phe Leu Met Phe Arg Tyr Pro Met Asp
245 250 255

Leu Gly Gly Arg Asn Phe Leu Ser Thr Pro Gln Phe Leu Tyr Arg Trp
260 265 270

Leu Pro Ser Arg Arg Gly Gly Val Ser Gly Phe Gly Val Pro Pro Ala
275 280 285

Ser Met Arg Arg Ala Ala Asp Gln Asn Gly Gly Xaa Gly Arg His Asn
290 295 300

Trp Gly Gln Gly Phe Arg Leu Gly Asp Gln
305 310

<210> 967
<211> 181
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (163)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (175)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 967
Thr Ser Ser Asp Thr Leu Thr Val Leu Ser Arg Ala Arg Leu Gly Ser
1 5 10 15

Leu Leu Trp Gln Asn Leu Gly Ser Gln Glu Val Leu Val Pro Gly Asn
20 25 30

Ser Cys Phe Ser Gly Ala Gly Leu Tyr Ser Leu Gln Pro Leu Ala Leu
35 40 45

<211> 314
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (39)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (300)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 966
```
Val Ser Pro Gln Lys Ala Ala Ser Leu Val Arg Ile Arg Trp Arg His
 1               5                  10                  15

Val Arg Pro Ser Pro Pro Ser Ala Ser Arg Leu Arg Arg Leu Pro Pro
            20                  25                  30

Arg His Leu Thr Val Ala Xaa Arg Pro Arg Arg Glu Gly Val Gly Thr
        35                  40                  45

Gly Ser Arg Ala Val Leu Cys Ile Leu Ala Thr Cys Gly Ser Lys Met
    50                  55                  60

Ser Asp Ile Gly Asp Trp Phe Arg Ser Ile Pro Ala Ile Thr Arg Tyr
65                  70                  75                  80

Trp Phe Ala Ala Thr Val Ala Val Pro Leu Val Gly Lys Leu Gly Leu
                85                  90                  95

Ile Ser Pro Ala Tyr Leu Phe Leu Trp Pro Glu Ala Phe Leu Tyr Arg
            100                 105                 110

Phe Gln Ile Trp Arg Pro Ile Thr Ala Thr Phe Tyr Phe Pro Val Gly
        115                 120                 125

Pro Gly Thr Gly Phe Leu Tyr Leu Val Asn Leu Tyr Phe Leu Tyr Gln
    130                 135                 140

Tyr Ser Thr Arg Leu Glu Thr Gly Ala Phe Asp Gly Arg Pro Ala Asp
145                 150                 155                 160

Tyr Leu Phe Met Leu Leu Phe Asn Trp Ile Cys Ile Val Ile Thr Gly
                165                 170                 175

Leu Ala Met Asp Met Gln Leu Leu Met Ile Pro Leu Ile Met Ser Val
            180                 185                 190
```

Lys Leu Lys Val Asp Ser Phe Arg Glu Arg Ile Thr Ser Glu Ala Glu
85 90 95

Asp Leu Val Ala Asn Phe Phe Pro Lys Lys Leu Leu Glu Leu Asp Ser
100 105 110

Phe Leu Lys Glu Pro Ile Leu Asn Ile His Asp Leu Thr Gln Ile His
115 120 125

Ser Asp Met Asn Leu Pro Val Pro Asp Pro Ile Leu Leu Thr Asn Ser
130 135 140

His Asp Gly Leu Asp Gly Pro Thr Tyr Lys Lys Arg Arg Leu Asp Glu
145 150 155 160

Cys Glu Glu Ala Phe Gln Gly Thr Lys Val Phe Val Met Pro Asn Gly
165 170 175

Met Leu Lys Ser Asn Gln Gln Leu Val Asp Ile Ile Glu Lys Val Lys
180 185 190

Pro Glu Ile Arg Leu Leu Ile Glu Lys Cys Asn Thr Val Lys Met Trp
195 200 205

Val Gln Leu Leu Ile Pro Arg Ile Glu Xaa Gly Asn Asn Phe Gly Val
210 215 220

Ser Ile Gln Glu Glu Thr Val Ala Glu Leu Arg Thr Val Glu Ser Glu
225 230 235 240

Ala Ala Ser Tyr Leu Asp Gln Ile Ser Arg Tyr Tyr Ile Thr Arg Ala
245 250 255

Lys Leu Val Ser Lys Ile Ala Lys Tyr Pro His Val Glu Asp Tyr Arg
260 265 270

Arg Thr Val Thr Glu Ile Asp Glu Lys Glu Tyr Ile Ser Leu Arg Leu
275 280 285

Ile Ile Ser Glu Leu Arg Asn Gln Tyr Val Thr Leu His Asp Met Ile
290 295 300

Leu Lys Asn Ile Glu Lys Ile Lys Arg Pro Arg Ser Ser Asn Ala Glu
305 310 315 320

Thr Leu Tyr

<210> 966

<211> 89
<212> PRT
<213> Homo sapiens

<400> 964
Ala Glu Ala Leu Gly Ser Pro Cys Phe Pro Gln Asp Leu Leu Leu Ala
1   5   10   15

Asn Arg Ser Ser Arg Gln Leu Leu Gln Cys Val Ser His Pro Ala Asn
            20   25   30

Arg Ser Val Cys Ile Ser Val Lys Glu Asn Ser Leu Val Pro Pro Gly
        35   40   45

Ser Ala Trp Lys Leu Asp Ala Asn Phe Tyr Ile Ala Trp Gln Thr Asp
    50   55   60

Gln Gln Cys Gln Ala Leu Ile Cys Ile Leu His Tyr Pro Phe Thr Trp
65   70   75   80

Phe Leu Ala Leu Asn Gly Leu Gln Pro
                85

<210> 965
<211> 323
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (218)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 965
Gly Arg Ala Ser Glu Arg Ala Ser Arg Gln Gln Ala Ala Gly Gly Arg
1   5   10   15

Ala Asp Gly Thr Glu Gly Gly Ser Glu Arg Ala Val Ser Lys Pro Ala
            20   25   30

Arg Ala Val Gly Ser Arg Gly Gln Pro Arg Phe Leu Arg Ser Leu Arg
        35   40   45

Pro Pro Pro Trp Ser Pro Gln Arg Leu Arg Cys Pro Glu Asp Arg Thr
    50   55   60

Arg Pro Gly Pro Ala Met Ala Ser Leu Leu Lys Val Asp Gln Glu Val
65   70   75   80

Pro Pro Pro Thr Lys Pro Pro Glu Thr Glu Ala Gln Arg Gly Pro Cys
145 150 155 160

Leu Gln Trp Leu Ser Glu Trp Thr Leu Glu Pro Asp Ser
165 170

<210> 963
<211> 80
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (47)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (48)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (77)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 963
Ser Ser Arg Gly Glu Pro Arg Ala Ala Leu Leu Cys Lys Arg Ser Asp
1 5 10 15

Val Leu Leu Glu Pro Phe Arg Arg Gly Val Met Glu Lys Leu Gln Leu
20 25 30

Gly Pro Glu Ile Leu Gln Arg Glu Asn Pro Arg Leu Ile Tyr Xaa Xaa
35 40 45

Leu Ser Gly Phe Gly Gln Ser Gly Lys Leu Leu Pro Val Ser Trp Pro
50 55 60

Arg Tyr Gln Leu Phe Gly Phe Cys Ser Gly Gly Arg Xaa Gln His Ile
65 70 75 80

<210> 964

```
 1               5                   10                  15

Val Tyr Ile Leu Met Asn Ile Asp Val Asn Lys Lys Gly Lys Lys Gln
            20                  25                  30

Asn Thr Arg Phe Phe Pro Ile Leu Met Leu Ala Pro Ser Lys Ser Leu
        35                  40                  45

Pro Thr Arg Met Asn Thr Phe Pro Lys Leu Asn Lys Phe Leu Phe Ile
    50                  55                  60

Lys Leu Arg Leu Lys Phe Val Gly Leu Gly Ser Phe Leu Lys Pro Arg
65                  70                  75                  80

Ala Cys Pro Leu Pro Thr Pro Pro Ser Phe Ala Pro Lys
                85                  90



<210> 962
<211> 173
<212> PRT
<213> Homo sapiens

<400> 962
Glu Pro Lys Ala Lys Pro His Arg Ser Arg Gly Ser Gly Thr Arg Ala
 1               5                  10                  15

Val Arg Arg Arg Ser Cys Leu Gln Ser Ala Ala Glu Ala Ala His Gly
            20                  25                  30

Pro Asp Thr Pro Ala Ala Arg Ala Leu Gln Ser Leu Gly His Pro Val
        35                  40                  45

Val Gly Asp Leu Thr Tyr Gly Glu Val Ser Gly Arg Glu Asp Arg Pro
    50                  55                  60

Phe Arg Met Met Leu His Ala Phe Tyr Leu Arg Ile Pro Thr Asp Thr
65                  70                  75                  80

Glu Cys Val Glu Val Cys Thr Pro Asp Pro Phe Leu Pro Ser Leu Asp
                85                  90                  95

Ala Cys Trp Ser Pro His Thr Leu Leu Gln Ser Leu Asp Gln Leu Val
            100                 105                 110

Gln Ala Leu Arg Ala Thr Pro Asp Pro Asp Pro Glu Asp Arg Gly Pro
        115                 120                 125

Arg Pro Gly Ser Pro Ser Ala Leu Leu Pro Gly Pro Gly Arg Pro Pro
    130                 135                 140
```

<212> PRT
<213> Homo sapiens

<400> 960
Pro Arg Val Arg Ala Arg Trp Arg Arg Gly His Phe Phe His Cys Pro
1   5   10   15

Ser Glu Gly Thr Leu Ser Ser Val Ser Gly Ala Val Phe Gln Leu Arg
            20   25   30

Val Val Pro Arg Glu Ser Glu Arg Pro Ser Pro Gly Trp Cys Asp Gly
        35   40   45

Arg Gly Gly Gly Gln Ala Gly Arg Ala Ala Val His Gln Arg Gly Gly
    50   55   60

Arg Ala Gly Gln Arg Arg Arg Pro Gly Leu Leu Pro Asp Leu Gly Val
65   70   75   80

Ser Ala Val Gly Gly His Gly Arg His Pro Arg Pro His Arg Pro Leu
                85   90   95

Arg Leu His Leu Leu Pro Ala Arg Leu Arg Pro Ala Leu Pro Ala Pro
            100   105   110

His Ser Gln Gly Gly Lys Glu Val Glu Gln Ile Phe Gln Ile Thr Glu
        115   120   125

Thr Ser Leu Tyr Arg Arg Pro His Arg Gly Pro Leu His Leu Arg Pro
    130   135   140

Val Leu Asp Val Pro Leu Arg His Gly Ala Arg Leu Leu Lys Trp Gly
145   150   155   160

Pro Gly Gly Leu Phe
                165

<210> 961
<211> 93
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (12)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 961
Thr Ala Thr Thr Glu Val Glu Val Leu Asp Met Xaa Val Leu Pro Leu

20 25 30

Thr His Ile Trp Leu Phe Val Arg Gly Leu His Gly Lys Ser Gly Thr
35 40 45

Trp Trp Asp Glu His Leu Ser Glu Glu Asn Val Pro Phe Ile Lys Gln
50 55 60

Leu Val Ser Asp Glu Asp Lys Ala Gln Leu Ala Ser Lys Leu Cys Pro
65 70 75 80

Leu Lys Asp Glu Pro Trp Pro Ile His Pro Trp Glu Pro Gly Ser Phe
85 90 95

Arg Val Gly Leu Ile Ala Leu Lys Leu Gly Met Met Pro Leu Trp Thr
100 105 110

Lys Asp Gly Gln Lys His Val Val Thr Leu Leu Gln Val Gln Asp Cys
115 120 125

His Val Leu Lys Tyr Thr Ser Lys Glu Asn Cys Asn Gly Lys Met Ala
130 135 140

Thr Leu Ser Val Gly Gly Lys Thr Val Ser Arg Phe Arg Lys Ala Thr
145 150 155 160

Ser Ile Leu Glu Phe Tyr Arg Glu Leu Gly Leu Pro Pro Lys Gln Thr
165 170 175

Val Lys Ile Phe Asn Ile Thr Asp Asn Ala Ala Ile Lys Pro Gly Thr
180 185 190

Pro Leu Tyr Ala Ala His Phe Arg Pro Gly Gln Tyr Val Asp Val Thr
195 200 205

Ala Lys Thr Ile Gly Lys Gly Phe Gln Gly Val Met Lys Arg Trp Gly
210 215 220

Phe Lys Gly Gln Pro Ala Thr His Gly Gln Thr Lys Thr His Arg Arg
225 230 235 240

Pro Gly Ala Val Ala Thr Gly Asp Ile Gly Arg Val Trp Pro Gly Thr
245 250 255

Lys Met Pro Gly Lys Met Gly Lys Cys Gly Glu
260 265

<210> 960
<211> 165

Ile Ala Val Ser Asn Leu His Lys Glu Thr Lys Lys Val Phe Ser Asp
100 105 110

Val Met Glu Asp Leu Tyr Xaa Leu His Lys Ser Thr
115 120

<210> 958
<211> 117
<212> PRT
<213> Homo sapiens

<400> 958
Ser Ile Met Phe Val Ala Leu Met Lys Tyr Phe Gln Glu Met Cys Pro
1 5 10 15

Gly Val Ala Leu Ala Met Leu Thr Arg Pro Leu Val Thr Gln Arg Ala
20 25 30

Leu Gly Pro Asp Gly Asp Leu Pro Leu Arg Phe Leu Tyr Gln Ala Leu
35 40 45

Ser Ser His Gly Ala Ser Gly Thr Ser Leu Leu Ser Trp Glu Lys Gly
50 55 60

Asn Trp Leu Pro Arg Gln Val Val Glu Ser Val Ala Gly Thr Arg Leu
65 70 75 80

Glu Ala His Leu Val Val Asn Arg Ala Gln Trp Gly Arg Leu Gly Met
85 90 95

Leu Trp Ser Met Gly Leu Phe Pro Gly Glu Cys Ser Gly Met Ser Ser
100 105 110

Gln Leu Leu Trp Cys
115

<210> 959
<211> 267
<212> PRT
<213> Homo sapiens

<400> 959
Ser Met Pro Gly Trp Arg Leu Leu Thr Gln Val Gly Ala Gln Val Leu
1 5 10 15

Gly Arg Leu Gly Asp Gly Leu Gly Ala Ala Leu Gly Pro Gly Asn Arg

Ile Val Cys Leu Phe Ala Phe Leu Val Ala His Cys Phe Leu Ser Ile
85 90 95

Tyr Glu Met Val Val Asp Val Leu Phe Leu Cys Phe Ala Ile Asp Thr
100 105 110

Lys Tyr Asn Asp Gly Ser Pro Gly Arg Glu Phe Tyr Met Asp Lys Val
115 120 125

Leu Met Glu Phe Val Glu Asn Ser Arg Lys Ala Met Lys Glu Ala Gly
130 135 140

Lys Gly Gly Val Ala Asp Ser Arg Glu Leu Asn Arg Cys Phe Gly Ser
145 150 155 160

Lys Phe Cys Leu Asn Leu Ala Asp Gly Tyr Gly Asn Pro Leu Thr Phe
165 170 175

Gln Asn Asn Ile Tyr Thr His Thr
180

<210> 957
<211> 124
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (119)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 957
Ser Arg Ser Pro Val Leu Asp Pro Ser Glu Pro Gln Pro Leu Ala Ala
1 5 10 15

Met His Val Ile Lys Arg Asp Gly Arg Gln Glu Arg Val Met Phe Asp
20 25 30

Lys Ile Thr Ser Arg Ile Gln Lys Leu Cys Tyr Gly Leu Asn Met Asp
35 40 45

Phe Val Asp Pro Ala Gln Ile Thr Met Lys Val Ile Gln Gly Leu Tyr
50 55 60

Ser Gly Val Thr Thr Val Glu Leu Asp Thr Leu Ala Ala Glu Thr Ala
65 70 75 80

Ala Thr Leu Thr Thr Lys His Pro Asp Tyr Ala Ile Leu Ala Ala Arg
85 90 95

Asn Pro Thr Asp Lys Pro Val Ile Gly Ile Ser Thr Tyr Asn Ile Val
195 200 205

Pro Phe Glu Ala Gly Gln Tyr Phe Asn Lys Ile Gln Cys Phe Cys Phe
210 215 220

Glu Glu Gln Arg Leu Asn Pro Gln Glu Glu Val Gly Tyr Ala Ser Val
225 230 235 240

Phe Leu His

<210> 956
<211> 184
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (10)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (12)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (16)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 956
Gly Leu Val Val Thr Leu Leu Thr His Xaa Phe Xaa Ile Asn Ser Xaa
1 5 10 15

Asn Phe Cys Thr Ser Ala Lys Asp Ala Phe Val Ile Leu Val Glu Asn
20 25 30

Ala Leu Arg Val Ala Thr Ile Asn Thr Val Gly Asp Phe Met Leu Phe
35 40 45

Leu Gly Lys Val Leu Ile Val Cys Ser Thr Gly Leu Ala Gly Ile Met
50 55 60

Leu Leu Asn Tyr Gln Gln Asp Tyr Thr Val Trp Val Leu Pro Leu Ile
65 70 75 80

115 120 125

Thr Xaa Cys Gln Phe Leu Val Cys Met Gln Ser Thr Phe Lys Glu Xaa
130 135 140

<210> 955
<211> 243
<212> PRT
<213> Homo sapiens

<400> 955
Thr Arg Pro Arg Thr Arg Gly Leu Trp Arg Pro Gly Trp Arg Cys Val
1 5 10 15

Pro Phe Cys Gly Trp Arg Trp Ile His Pro Gly Ser Pro Thr Arg Ala
20 25 30

Ala Glu Arg Val Glu Pro Phe Leu Arg Pro Glu Trp Ser Gly Thr Gly
35 40 45

Gly Ala Glu Arg Gly Leu Arg Trp Leu Gly Thr Trp Lys Arg Cys Ser
50 55 60

Leu Arg Ala Arg His Pro Ala Leu Gln Pro Pro Arg Arg Pro Lys Ser
65 70 75 80

Ser Asn Pro Phe Thr Arg Ala Gln Glu Glu Glu Arg Arg Arg Gln Asn
85 90 95

Lys Thr Thr Leu Thr Tyr Val Ala Ala Val Ala Val Gly Met Leu Gly
100 105 110

Ala Ser Tyr Ala Ala Val Pro Leu Tyr Arg Leu Tyr Cys Gln Thr Thr
115 120 125

Gly Leu Gly Gly Ser Ala Val Ala Gly His Ala Ser Asp Lys Ile Glu
130 135 140

Asn Met Val Pro Val Lys Asp Arg Ile Ile Lys Ile Ser Phe Asn Ala
145 150 155 160

Asp Val His Ala Ser Leu Gln Trp Asn Phe Arg Pro Gln Gln Thr Glu
165 170 175

Ile Tyr Val Val Pro Gly Glu Thr Ala Leu Ala Phe Tyr Arg Ala Lys
180 185 190

<222> (17)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (32)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (107)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (114)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (130)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (144)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 954
Ile Val Tyr Val Pro Ser His Leu His His Met Xaa Phe Glu Leu Phe
1 5 10 15

Xaa Asn Ala Met Arg Ala Thr Val Glu His Gln Glu Asn Gln Pro Xaa
20 25 30

Leu Thr Pro Ile Glu Val Ile Val Ala Leu Gly Lys Glu Asp Leu Thr
35 40 45

Ile Lys Ile Ser Asp Arg Gly Gly Gly Val Pro Leu Arg Ile Ile Asp
50 55 60

Arg Leu Phe Ser Tyr Thr Tyr Ser Thr Ala Pro Thr Pro Val Met Asp
65 70 75 80

Asn Ser Arg Asn Ala Pro Leu Ala Gly Phe Gly Tyr Gly Leu Pro Ile
85 90 95

Ser Arg Leu Tyr Ala Lys Tyr Phe Gln Gly Xaa Leu Asn Leu Tyr Ser
100 105 110

Leu Xaa Gly Tyr Gly Thr Asp Ala Ile Ile Tyr Leu Lys Ala Leu Val

Ser Ser Thr Trp Gly Gln Gln Ser Asn Thr Thr Ala Cys Gln Ser Gln
85 90 95

Ala Thr Leu Ser Leu Ala Glu Ile Gln Lys Leu Glu Glu Glu Arg Glu
100 105 110

Arg Gln Xaa Arg Glu Glu Gln Arg Arg Gln Gln Arg Glu Leu Met Lys
115 120 125

Ala Leu Gln Gln Gln Gln Gln Gln Gln Gln Gln Lys Leu Ser Gly Trp
130 135 140

Gly Asn Val Ser Lys Pro Ser Gly Thr Thr Lys Ser Leu Leu Glu Ile
145 150 155 160

Gln Gln Glu Glu Ala Arg Gln Met Gln Lys Gln Gln Gln Gln Gln Gln
165 170 175

Gln His Gln Gln Pro Asn Arg Ala Arg Asn Asn Thr His Ser Asn Leu
180 185 190

His Thr Ser Ile Gly Asn Ser Val Trp Gly Ser Ile Asn Thr Gly Pro
195 200 205

Pro Asn Gln Trp Ala Ser Asp Leu Val Ser Ser Ile Trp Ser Asn Ala
210 215 220

Asp Thr Lys Asn Ser Asn Met Gly Phe Trp Asp Asp Ala Val Lys Glu
225 230 235 240

Val Gly Pro Arg Asn Ser Thr Asn Lys Asn Lys Asn Asn Ala Ile Ser
245 250 255

Val Asn Leu

<210> 954
<211> 144
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (12)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE

Leu Lys His Val Val Leu Asp Glu Val Asp Gln Met Leu Asp Met Gly
355 360 365

Phe Ala Asp Gln Val Glu Glu Ile Leu Ser Val Ala Tyr Lys Lys Asp
370 375 380

Ser Glu Asp Asn Pro Gln Thr Leu Leu Phe Ser Ala Thr Cys Pro His
385 390 395 400

Trp Val Phe Asn Val Ala Lys Lys Tyr Met Lys Ser Thr Tyr Glu Gln
405 410 415

Val Asp Leu Ile Gly Lys Lys Thr Gln Lys Thr Ala Ile Thr Val Glu
420 425 430

His Leu Ala Ile Lys Cys His Trp Thr Gln Arg Ala Ala Val Ile Gly
435 440 445

Asp Val Ile Arg Val Tyr Ser Gly His Gln Gly Arg Thr Ile Ile Phe
450 455 460

Xaa Glu Thr Xaa Xaa Glu Ala Gln Glu Leu Ser
465 470 475

<210> 953
<211> 259
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (115)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 953
His Glu Ala Lys Trp Ala Arg Glu Glu Glu Glu Ala Gln Arg Arg Leu
1 5 10 15

Glu Glu Asn Arg Leu Arg Met Glu Glu Glu Ala Ala Arg Leu Arg His
20 25 30

Glu Glu Glu Glu Arg Lys Arg Lys Ala Leu Glu Val Gln Arg Gln Lys
35 40 45

Glu Leu Met Arg Gln Arg Gln Gln Gln Gln Glu Ala Leu Arg Arg Leu
50 55 60

Gln Gln Gln Gln Gln Gln Gln Gln Leu Ala Gln Met Lys Leu Pro Ser
65 70 75 80

Lys Ala Glu Pro Ser Glu Val Asp Met Asn Ser Pro Lys Ser Lys Lys
85 90 95

Ala Lys Lys Lys Glu Glu Pro Ser Gln Asn Asp Ile Ser Pro Lys Thr
100 105 110

Lys Ser Leu Arg Lys Lys Lys Glu Pro Ile Glu Lys Lys Val Val Ser
115 120 125

Ser Lys Thr Lys Lys Val Thr Lys Asn Glu Glu Pro Ser Glu Glu Glu
130 135 140

Ile Asp Ala Pro Lys Pro Lys Lys Met Lys Lys Glu Lys Glu Met Asn
145 150 155 160

Gly Glu Thr Arg Glu Lys Ser Pro Lys Leu Lys Asn Gly Phe Pro His
165 170 175

Pro Glu Pro Asp Cys Asn Pro Ser Glu Ala Ala Ser Glu Glu Ser Asn
180 185 190

Ser Glu Ile Glu Gln Glu Ile Pro Val Glu Gln Lys Glu Gly Ala Phe
195 200 205

Ser Asn Phe Pro Ile Ser Glu Glu Thr Ile Lys Leu Leu Lys Gly Arg
210 215 220

Gly Val Thr Phe Leu Phe Pro Ile Gln Ala Lys Thr Phe His His Val
225 230 235 240

Tyr Ser Gly Lys Asp Leu Ile Ala Gln Ala Arg Thr Gly Thr Gly Lys
245 250 255

Thr Phe Ser Phe Ala Ile Pro Leu Ile Glu Lys Leu His Gly Glu Leu
260 265 270

Gln Asp Arg Lys Arg Gly Arg Ala Pro Gln Val Leu Val Leu Ala Pro
275 280 285

Thr Arg Glu Leu Ala Asn Gln Val Ser Lys Asp Phe Ser Asp Ile Thr
290 295 300

Lys Lys Leu Ser Val Ala Cys Phe Tyr Gly Gly Thr Pro Tyr Gly Gly
305 310 315 320

Gln Phe Glu Arg Met Arg Asn Gly Ile Asp Ile Leu Val Gly Thr Pro
325 330 335

Gly Arg Ile Lys Asp His Ile Gln Asn Gly Lys Leu Asp Leu Thr Lys
340 345 350

Ile Phe Pro Leu Ala Val Phe Leu Cys Ser Leu Leu Pro Leu Phe Phe
35 40 45

Pro Trp Phe Val Ile Ile Arg Arg Glu Val Leu Gln Arg Leu Val Ala
50 55 60

Val Lys Glu Ser Phe Phe Asn Phe Tyr Pro Arg Val Ser His Phe Tyr
65 70 75 80

Ser Arg

<210> 952
<211> 475
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (465)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (468)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (469)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 952
Leu Val Leu Pro Leu His Ala Val Glu Lys Thr Gly Arg Pro Gly Gln
1 5 10 15

Pro Ala Leu Lys Met Pro Gly Lys Leu Arg Ser Asp Ala Gly Leu Glu
20 25 30

Ser Asp Thr Ala Met Lys Lys Gly Glu Thr Leu Arg Lys Gln Thr Glu
35 40 45

Glu Lys Glu Lys Lys Glu Lys Pro Lys Ser Asp Lys Thr Glu Glu Ile
50 55 60

Ala Glu Glu Glu Glu Thr Val Phe Pro Lys Ala Lys Gln Val Lys Lys
65 70 75 80

245 250 255

Asp Phe Trp Arg Met Leu Trp Glu His Asn Ser Thr Ile Ile Val Met
260 265 270

Leu Thr Lys Leu Arg Glu Met Gly Arg Glu Lys Cys His Gln Tyr Trp
275 280 285

Pro Ala Glu Arg Ser Ala Arg Tyr Gln Tyr Phe Val Val Asp Pro Met
290 295 300

Ala Glu Tyr Asn Met Pro Gln Tyr Ile Leu Arg Glu Phe Lys Val Thr
305 310 315 320

Asp Ala Arg Asp Gly Gln Ser Arg Thr Ile Arg Gln Phe Gln Phe Thr
325 330 335

Asp Trp Pro Glu Gln Gly Val Pro Lys Thr Gly Glu Gly Phe Ile Asp
340 345 350

Phe Ile Gly Gln Val His Lys Thr Lys Glu Gln Phe Gly Gln Asp Gly
355 360 365

Pro Ile Thr Val His Cys Ser Ala Gly Val Gly Arg Thr Gly Val Phe
370 375 380

Ile Thr Leu Ser Ile Val Leu Glu Arg Met Arg Tyr Glu Gly Val Val
385 390 395 400

Asp Met Phe Gln Thr Val Lys Thr Leu Arg Thr Gln Arg Pro Ala Met
405 410 415

Val Gln Thr Glu Asp Gln Tyr Gln Leu Cys Tyr Arg Ala Ala Leu Glu
420 425 430

Tyr Leu Gly Ser Phe Asp His Tyr Ala Thr
435 440

<210> 951
<211> 82
<212> PRT
<213> Homo sapiens

<400> 951
Asn Ser Lys Val Gly Ile Ser Arg Asn Cys Val Gln Met His Pro Val
1 5 10 15

Val Ala Leu Gln Glu Val Cys Leu Met Lys Leu Gly Lys His Phe Ala
20 25 30

<211> 442
<212> PRT
<213> Homo sapiens

<400> 950

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Ala Arg Gly Thr Glu Thr Cys Gly Leu Ile Gln Val Thr Leu Leu Asp
1               5                   10                  15

Thr Val Glu Leu Ala Thr Tyr Thr Val Arg Thr Phe Ala Leu His Lys
            20                  25                  30

Ser Gly Ser Ser Glu Lys Arg Glu Leu Arg Gln Phe Gln Phe Met Ala
        35                  40                  45

Trp Pro Asp His Gly Val Pro Glu Tyr Pro Thr Pro Ile Leu Ala Phe
    50                  55                  60

Leu Arg Arg Val Lys Ala Cys Asn Pro Leu Asp Ala Gly Pro Met Val
65                  70                  75                  80

Val His Cys Ser Ala Gly Val Gly Arg Thr Gly Cys Phe Ile Val Ile
                85                  90                  95

Asp Ala Met Leu Glu Arg Met Lys His Glu Lys Thr Val Asp Ile Tyr
            100                 105                 110

Gly His Val Thr Cys Met Arg Ser Gln Arg Asn Tyr Met Val Gln Thr
        115                 120                 125

Glu Asp Gln Tyr Val Phe Ile His Glu Ala Leu Leu Glu Ala Ala Thr
    130                 135                 140

Cys Gly His Thr Glu Val Pro Ala Arg Asn Leu Tyr Ala His Ile Gln
145                 150                 155                 160

Lys Leu Gly Gln Val Pro Pro Gly Glu Ser Val Thr Ala Met Glu Leu
                165                 170                 175

Glu Phe Lys Leu Leu Ala Ser Ser Lys Ala His Thr Ser Arg Phe Ile
            180                 185                 190

Ser Ala Asn Leu Pro Cys Asn Lys Phe Lys Asn Arg Leu Val Asn Ile
        195                 200                 205

Met Pro Tyr Glu Leu Thr Arg Val Cys Leu Gln Pro Ile Arg Gly Val
    210                 215                 220

Glu Gly Ser Asp Tyr Ile Asn Ala Ser Phe Leu Asp Gly Tyr Arg Gln
225                 230                 235                 240

Gln Lys Ala Tyr Ile Ala Thr Gln Gly Pro Leu Ala Glu Ser Thr Glu
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Arg Leu Cys Phe Phe Gly Ile Ala Pro Asn Phe Ser Leu Leu Leu Arg
20 25 30

Ala Ala His Ala Val Leu Ser Ser Tyr Trp Ser Gln Pro Leu Gly Glu
35 40 45

Glu Arg Asn Ala Trp
50

<210> 949
<211> 154
<212> PRT
<213> Homo sapiens

<400> 949
Trp Asp Tyr Ile Leu Cys Ala Gly Leu Arg Glu His Glu Glu Gly Ala
1 5 10 15

Ile Cys His Thr Leu Glu Ala Glu Ala Cys Thr Ser Ala Ala Arg Leu
20 25 30

Thr Val Val Gly Gly Gly Asp Gly Asn Cys Arg Ser Ala Arg Val Val
35 40 45

Glu Lys Leu Leu Gln Gly Phe Ser Gly Phe Ala Cys Pro Ala Ala Pro
50 55 60

Cys Leu Ala Arg Gly Glu Gly Gly Ala Thr Cys Gly Thr Leu Glu Ala
65 70 75 80

Gly Ala Cys Arg Trp His Gly Ser Ala Ala His Leu Ala Ala Val Gly
85 90 95

Gly Gly Asp Arg Asp Cys Ser Leu Thr Val Val Asn Leu Glu Ile Ile
100 105 110

Cys Leu Glu Ala Leu Ser Leu Ser Trp Asp Leu Lys Arg Arg Gly Ser
115 120 125

Pro Asn Ser Gln Gln Ser Asn Ser Lys Trp Cys Cys Lys Leu Asn His
130 135 140

Thr Trp Thr Gly His Ser Ser Glu Asp Pro
145 150

<210> 950

<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (156)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 947
Gly Pro Arg Arg Gly Pro Gly Pro Gly Gly Cys Ala Ala Pro Ala Thr
1 5 10 15

Glu Glu Gln Glu Ala Ala Ser Ser Ser Ser Xaa Leu Xaa Glu Val Thr
20 25 30

Leu Gly Glu Val Pro Ala Ala Glu Ser Pro Asp Pro Pro Gln Ser Pro
35 40 45

Gln Gly Ala Ser Ser Leu Pro Xaa Thr Met Asn Tyr Pro Leu Trp Ser
50 55 60

Gln Ser Tyr Glu Asp Ser Ser Asn Gln Glu Glu Glu Gly Pro Ser Thr
65 70 75 80

Phe Pro Asp Leu Glu Ser Glu Phe Gln Ala Ala Leu Ser Arg Lys Val
85 90 95

Ala Lys Leu Val His Phe Leu Leu Leu Lys Tyr Arg Ala Xaa Glu Pro
100 105 110

Val Thr Lys Ala Glu Met Leu Gly Ser Val Val Gly Lys Leu Ala Ser
115 120 125

Thr Ser Phe Xaa Xaa Ile Phe Lys Gln Lys Leu Ser Asp Phe Leu Cys
130 135 140

Asn Leu Xaa Phe Trp His Ser Lys Leu Glu Trp Xaa Val Gly Pro Pro
145 150 155 160

<210> 948
<211> 53
<212> PRT
<213> Homo sapiens

<400> 948
Ser Asn Trp Ile Ile Asp Cys Asn Cys Leu Glu Ile Tyr His Lys Asn
1 5 10 15

<400> 946
Gly Phe Leu Gly Leu Leu Phe Met Pro Gln Ala Thr Tyr Pro Gly Glu
1 5 10 15

Ser Leu Pro Val Leu Leu His Glu Phe Leu Ser His Arg Met His Val
20 25 30

Pro Leu His Phe Val Thr Ser Val Ser Pro Thr Arg Gln
35 40 45

<210> 947
<211> 160
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (27)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (29)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (56)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (110)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (132)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (133)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (147)

Arg Glu Ala Ala Phe Asp Ala Glu Tyr Gln Arg Asn Pro His Arg Val
50 55 60

Asp Leu Asp Ile Leu Thr Phe Thr Ile Ala Leu Thr Ala Ser Glu Val
65 70 75 80

Ile Asn Pro Leu Ile Glu Glu Leu Gly Cys Asp Lys Phe Ile Asn Arg
85 90 95

Glu

<210> 945
<211> 123
<212> PRT
<213> Homo sapiens

<400> 945
Ser Gly Ser Pro Gly Leu Gln Glu Phe Arg Ala Pro Gly Val Gln Gln
1 5 10 15

Asp Glu Arg Leu Ala Ser Pro Ile His Ser Thr Tyr Ile Pro Ile Pro
20 25 30

Thr Ser Ala Ile Cys Ala Thr Gly Ser Asn Gly Ser Ala Pro Thr Arg
35 40 45

Ile Ser Val Gln Cys Leu Ser Pro Ala Thr Thr Gly Ser Ala Ser Val
50 55 60

Asp Leu Cys Cys Thr Arg Asp Ile Ser Leu Leu Pro Gly Glu Pro Pro
65 70 75 80

Ile Ala Val Pro Thr Gly Val Phe Gly Pro Leu Pro Thr Gly Ser Val
85 90 95

Gly Leu Leu Phe Asp Leu Ser Ser Leu Asn Leu Lys Gly Val Gln Val
100 105 110

His Thr Gly Val Ile Asp Ser Asp Ile Gln Val
115 120

<210> 946
<211> 45
<212> PRT
<213> Homo sapiens

Ser Leu Pro Thr Cys Lys Gly Phe Phe Asn Ile Tyr His Pro Leu Asp
50 55 60

Pro Val Ala Tyr Arg Leu Glu Pro Met Ile Val Pro Asp Leu Asp Leu
65 70 75 80

Lys Ala Val Leu Ile Pro His His Lys Gly Arg Lys Arg Leu His Leu
85 90 95

Glu Leu Lys Glu Ser Leu Ser Arg Met Gly Ser Asp Leu Lys Gln Gly
100 105 110

Phe Ile Ser Ser Leu Lys Ser Ala Trp Gln Thr Leu Asn Glu Phe Ala
115 120 125

Arg Ala His Thr Ser Ser Thr Gln Leu Gln Glu Glu Leu Glu Lys Val
130 135 140

Ala Asn Gln Ile Lys Glu Glu Glu Glu Lys Gln Val Val Glu Ala Glu
145 150 155 160

Lys Val Val Glu Ser Pro Asp Phe Ser Lys Asp Glu Asp Tyr Leu Gly
165 170 175

Lys Val Gly Lys Val Lys Trp Arg Pro Pro Xaa Leu Thr Thr Phe Ser
180 185 190

Lys Lys Asn Gln
195

<210> 944
<211> 97
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (41)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 944
Pro His Gly Leu Arg Cys Pro Ser Cys Pro Gln Thr Ala Val Ser Arg
1 5 10 15

Arg Gln Ala Arg Arg Met Val Thr Glu Thr Ser Arg Arg Arg Arg Ile
20 25 30

Gln Glu Leu Glu Glu Arg Arg Arg Xaa Phe Val Glu Ala Cys Arg Ala
35 40 45

Cys Cys Ser Asp Pro Leu Ser Leu Leu Glu Ser Arg Met Glu Val Asp
260 265 270

Asp Tyr Ser Gln Tyr Glu Glu Glu Ser Thr Asp Asp Ser Ser Ser Ser
275 280 285

Glu Gly Asp Glu Glu Glu Asp Asp Tyr Asp Asp Asp Phe Glu Asp Asp
290 295 300

Phe Ile Pro Leu Pro Pro Ala Lys Arg Leu Arg Leu Ile Val Gly Lys
305 310 315 320

Asp Ser Ile Asp Ile Asp Ile Ser Ser Arg Arg Arg Glu Asp Gln Ser
325 330 335

Leu Arg Leu Asn Ala
340

<210> 943
<211> 196
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (1)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (9)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (187)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 943
Xaa Leu Leu Lys Val Trp Arg Ala Xaa Gln Val Ser Val Ala Tyr Asn
1 5 10 15

Ser Leu Asp Phe Glu Pro Glu Ile Phe Phe Ala Leu Gly Ser Pro Ile
20 25 30

Ala Met Phe Leu Thr Ile Arg Gly Val Asp Arg Ile Asp Glu Asn Tyr
35 40 45

<212> PRT
<213> Homo sapiens

<400> 942
Arg Thr Asn Leu Lys Glu Ala Ser Asp Ile Lys Leu Glu Pro Asn Thr
1 5 10 15

Leu Asn Gly Tyr Lys Ser Ser Val Thr Glu Pro Cys Pro Asp Ser Gly
20 25 30

Glu Gln Leu Gln Pro Ala Pro Val Leu Gln Glu Glu Glu Leu Ala His
35 40 45

Glu Thr Ala Gln Lys Gly Glu Ala Lys Cys His Lys Ser Asp Thr Gly
50 55 60

Met Ser Lys Lys Lys Ser Arg Gln Gly Lys Leu Val Lys Gln Phe Ala
65 70 75 80

Lys Ile Glu Glu Ser Thr Pro Val His Asp Ser Pro Gly Lys Asp Asp
85 90 95

Ala Val Pro Asp Leu Met Gly Pro His Ser Asp Gln Gly Glu His Ser
100 105 110

Gly Thr Val Gly Val Pro Val Ser Tyr Thr Asp Cys Ala Pro Ser Pro
115 120 125

Val Gly Cys Ser Val Val Thr Ser Asp Ser Phe Arg Thr Lys Asp Ser
130 135 140

Phe Arg Thr Ala Lys Ser Lys Lys Lys Arg Arg Ile Thr Arg Tyr Asp
145 150 155 160

Ala Gln Leu Ile Leu Glu Asn Asn Ser Gly Ile Pro Lys Leu Thr Leu
165 170 175

Arg Arg Arg His Asp Ser Ser Ser Lys Thr Asn Asp Gln Glu Asn Asp
180 185 190

Gly Met Asn Ser Ser Lys Ile Ser Ile Lys Leu Ser Lys Asp His Asp
195 200 205

Asn Asp Asn Asn Leu Tyr Val Ala Lys Leu Asn Asn Gly Phe Asn Ser
210 215 220

Gly Ser Gly Ser Ser Ser Thr Lys Leu Lys Ile Gln Leu Lys Arg Asp
225 230 235 240

Glu Glu Asn Arg Gly Ser Tyr Thr Glu Gly Leu His Glu Asn Gly Val
245 250 255

<400> 941

His Glu Cys Ala Cys Leu Pro Gly Tyr Ala Gly Asp Gly His Gln Cys
1   5   10   15

Thr Asp Val Asp Glu Cys Ser Glu Asn Arg Cys His Pro Ala Ala Thr
            20   25   30

Cys Tyr Asn Thr Pro Gly Ser Phe Ser Cys Arg Cys Gln Pro Gly Tyr
        35   40   45

Tyr Gly Asp Gly Phe Gln Cys Ile Pro Asp Ser Thr Ser Ser Leu Thr
    50   55   60

Pro Cys Glu Gln Gln Gln Arg His Ala Gln Ala Gln Tyr Ala Tyr Pro
65   70   75   80

Gly Ala Arg Phe His Ile Pro Gln Cys Asp Glu Gln Gly Asn Phe Leu
                85   90   95

Pro Leu Gln Cys His Gly Ser Thr Gly Phe Cys Trp Cys Val Asp Pro
            100   105   110

Asp Gly His Glu Val Pro Gly Thr Gln Thr Pro Pro Gly Ser Thr Pro
        115   120   125

Pro His Cys Gly Pro Ser Pro Glu Pro Thr Gln Arg Pro Pro Thr Ile
    130   135   140

Cys Glu Arg Trp Arg Glu Asn Leu Leu Glu His Tyr Gly Gly Thr Pro
145   150   155   160

Arg Asp Asp Gln Tyr Val Pro Gln Cys Asp Asp Leu Gly His Phe Ile
                165   170   175

Pro Leu Gln Cys His Gly Lys Ser Asp Phe Cys Trp Cys Val Asp Lys
            180   185   190

Asp Gly Arg Glu Val Gln Gly Thr Gly Xaa Pro Ala Arg His His Pro
        195   200   205

Cys Val Tyr Thr His Arg Arg Ser Xaa His Gly Pro Ala His Ala Pro
    210   215   220

Ala Arg Cys Xaa Pro Ser Ile Cys Gly Gln Leu Pro Gly Ala
225   230   235

<210> 942
<211> 341

<220>
<221> misc feature
<222> (423)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (440)
<223> n equals a,t,g, or c

<400> 939
cngacgcgtg ggtcgaccna cgcgtccgcc cacgcgtccg cccacgcgtc cgacgacaga 60
agggtacggc tgcgagaaga cgcagaaggg tacggctgcg agaagacgnn agaaggggct 120
tttcacattc gggaaacgtc gggattaggt gaaagtacgt agttgtcttt cgtaagtcaa 180
aatgataatt gggccgaaac ttactgcctt acctaaaagg cagcgcagtc aggatattgg 240
taggtcgggg gcggctttgg aaacccttaa gtttacaagc atgcgcggac ttgagtgctc 300
attaggtcgc cgggcgtcca cgtgcagccc tggaccctga accccggcgt gcgttggccg 360
tnggcctcgg ggaaaagttc cgtgcactcg gggantccgg tgaagctgtt cagccgtctg 420
tgncatgtgg ccatcttgan tctactctgt 450

<210> 940
<211> 233
<212> DNA
<213> Homo sapiens

<400> 940
ggagcgcctg tgggagccct ggagggaact ttcccagtcc ccgaggcgga tcgggtgttg 60
catccatgga gcgagctgag agctcgagta cagaacctgc taaggccatc aaacctattg 120
atcagaagtc agtccatcag atttgctctg ggcaggtggt actgagtcta agcactgcgg 180
taaaggagtt agtagaaaac agtctggatg ctggtgccac taatattgat cta 233

<210> 941
<211> 238
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (202)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (217)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (228)
<223> Xaa equals any of the naturally occurring L-amino acids

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (428)
<223> n equals a,t,g, or c

<400> 938
cagaactgat agaacaaaca ctactctttt gaatttgatg gttcgtgtcc tttaaagtgt 60
ttgaggacct atgcagagcc tgtaacactt gggtagtacc tgctaggaca atttcttggc 120
aattgtctta ctactaggga tcagtaagat ttagattctg agcccataat ggcaacagcc 180
ccctcaccta tgggaagctg acttccctca gtcgggcact tctcatgggg gctgaacatg 240
gttcctgcca ttctgttacc cactctccca ggtgagccct ggattggctc ccagaaggcc 300
ttgtaaaaat ccatagccat cctgcaggca gtgggagcaa caggggcttt catagcttca 360
tttccngtct tgcagacaag gaccctgggn aacatgtgct gctaatanga taattactcc 420
gttgnccnaa ttaccag 437

<210> 939
<211> 450
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (2)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (19)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (109)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (110)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (362)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (395)
<223> n equals a,t,g, or c

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (187)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (191)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (198)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (200)
<223> n equals a,t,g, or c

<400> 937
agtcttaaga ccaannaagc acgnaagcgc cgtgaagagc gcctccaggc caagnaggag 60
gngatcatca agactttatc caaggaggaa gagaccaaga aataaaacct cccactttgt 120
ctgtacatac tggcctctgt gattacatag atcagccatt gaaaataaaa caagncttaa 180
tctgcanata ngacaagnan aaaatttcg 209

<210> 938
<211> 437
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (366)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (390)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (408)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (425)

<222> (418)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (438)
<223> n equals a,t,g, or c

<400> 936
ggtggtaagt ggcttcgtgg tctttatagc tgttactctt ttgtactttg tctttttctt 60
ttattttctt ttgagcgatt gtgcgaacat agcatagcac gcactatgcc ttctgtgttg 120
tagctgcctg gccagggcga ctggcggata aggtcttgtg cgtggcctcg angcttaaaa 180
gtaacagtgg ggctttgtga angacaaaat ggcgatggcg ggccgtgtan gtccccccttc 240
ctatgatgaa agaccttttc acagacctgt tactgaactc cgtgaagata aatantctga 300
aganatnggc cctgcaagcc tcttgcttac ccgtcctgtt ccaaaaaaat acgttttcca 360
aaatgccctg aatttgaact aatntcttat tgggcncccg ntctgccaga tttacccnca 420
ctttggaaca aaaaaaancc ttttgtttgc 450

<210> 937
<211> 209
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (15)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (16)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (24)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (55)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (62)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (175)

<211> 450
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (172)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (202)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (230)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (295)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (304)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (307)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (384)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (396)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (401)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<220>
<221> misc feature
<222> (121)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (122)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (124)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (301)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (326)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (327)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (356)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (365)
<223> n equals a,t,g, or c

<400> 935
ggcagaggag aaactgtgtg tgaggggaag aggcctgttt cgctgtcggg tctctagttc 60
ttgcacgctc tttaagagtc tgcactggag gaactctgcc attaccagct cccttcttgc 120
nnangccggt gggaaacata catttattca tgccagtctg ttgcatgcag gctttttggc 180
ttcctacctt gcaacaaaat gaattgcacc aactccttag tgccgattcc gcccacagag 240
agtcctggag ccacagtctt ttttgctttg cattgtagga gagggactaa gtgctagaga 300
ntatgtcgtt ttccctgagc taaccnngag cgttcgtgga actgggatca aactgntttc 360
agggnaaaag gaaaaaaa 378

<210> 936

<221> misc feature
<222> (12)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (37)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (49)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (102)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (463)
<223> n equals a,t,g, or c

<400> 933
gtggnngcgc tnctagaact atggatcccc cggctgncag gattacggnc acgagcaagg 60
gcagtgttac acttatgagg aactgtctct agccatccag gnaagtacta ctgggtctga 120
gggatggaaa gttcttcctg ctatgaatga gagtggactc ttcccctcac ccccaactga 180
aaccacaaac aaccagaatc ttctggaatt ctgacttaga gtcgttgtta tagaagacct 240
tgttgctatg gaacatgaaa ctgtgtgtca gatggagaga tcccccttaac ctaagagcct 300
taaatagccc tgaaagtaca ctgggacggt ttgcgatgga attaaaattg gaagtgatat 360
ttttaggtgc tcttgaaagc tttctgggga ctcaaaatta tcaaaagtca gggacagtcc 420
ggaggaagag cgtctgcaaa actgggttcc tagaagtata gancggactt agctg 475

<210> 934
<211> 322
<212> DNA
<213> Homo sapiens

<400> 934
ataaacaaca tctccagaca gatctacctg accgacaacc ctgaggcagt cgcgatcaag 60
ttgaatcaga ccgctctgca agcagtgact cccattacaa gttttggaaa aaaacaagaa 120
agctcatgcc ccagccagaa cctgaaaaat tcagagatgg aaaatgaaaa tgacaagatt 180
gttcccaaag caacagccag tctacctgaa gcagaggagc tgatcgcgcc tggaacgccg 240
attcaattcg atattgtgct tcctgctaca gaattccttg atcagaacag agggagcagg 300
cgtaccaacc cttttggtga aa 322

<210> 935
<211> 378
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (311)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (316)
<223> n equals a,t,g, or c

<400> 931
cggtacgcgt gggcggacgc gtgggcggac gcgtggggcc atctcacctc ttcattctct 60
tgttacattt gaagcagttg atataatggg tttatacttt aaaagataga catggtgcca 120
tgaagttggg gagttgggtg aattatccca ttctagttac agangagctt tccttaaatg 180
ccctttaact tctaggtttt gttcnagaag ttcattttct gagttaaaag tnattttcat 240
atatgtttgg gggaaaatta actcatcctc aaaaagaatc cttattaggt tanttnaact 300
ccttaaaact naaccnaatc 320

<210> 932
<211> 265
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (256)
<223> n equals a,t,g, or c

<400> 932
aaaaaagata tattaacagt tttagaagtc agtagaataa aatcttaaag cactcataat 60
atggcatcct tcaatttctg tataaaagca gatcttttta aaaagatact tctgtaactt 120
aagaaacctg gcatttaaat catattttgt ctttaggtaa aagctttggt ttgtgttcgt 180
gttttgtttg tttcacttgt ttccctccca gccccaaacc ttttgttctc tccgtgaaac 240
ttacctttcc cttttncttt ctctt 265

<210> 933
<211> 475
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (5)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (6)
<223> n equals a,t,g, or c

<220>

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (375)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (388)
<223> n equals a,t,g, or c

<400> 930
gtcccccact cggagctcct ccagcccgct tcccgtattt gcagcatgtc ccggcgttca 60
cagagcttgg ctgcctcctc tgtcccagga gagagatgct tagagctgtc ctcccaggga 120
gtcatgtcag cctctagggt gtgcatggga gctgagggga cactcctgct gcctccctgg 180
agtggtaatt aaccgggact ttcctcctcc cagaaccaac atcccgggta acggttgggc 240
tgaaggacag gtgacgtgtc cctaactccc cccсttccct gcccgaggtt ccggcatcca 300
acgtcttggc ttcctggtct tcaagcagga cnaccgattg gcttttctga agangcaagn 360
ccttaacctg gtaanttaaa acaaccanaa 390

<210> 931
<211> 320
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (164)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (205)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (232)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (293)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (296)
<223> n equals a,t,g, or c

ctctaaatcc ccttgtaaat ttaactgtta gtcccaagag ggacagctct ttngncacta 420
gggaaaaacc ttgtagggn 439

<210> 929
<211> 433
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (388)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (417)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (432)
<223> n equals a,t,g, or c

<400> 929
ctgcattcag cattttaagg atttatattc atagtcacgc gccgcttaag gaggattcat 60
tctgtgaaat gagttgttag gcagtttcat tgtgcgagca tcatagggtg aacttacaca 120
aacctaggtt gcagagccta ctgcacacct cggctgtgtg gtctaacctg ttgctcctgg 180
actgcaaacc tgtacagcct gttactgtcc tgaatactgc aggcagttag aacagagtgg 240
tacatagttg tgtttctaaa catatcggaa cctagaaaag gtacagtaga aatacggtat 300
tacaatctta tgggaccact gtctgtgtgc ggtctgttgt tgactgaaat gttatgcagt 360
acatgggctg ccatgagatt accttganaa ttttgcctga tatgaaacct agatatnacc 420
ttaaatatgg gna 433

<210> 930
<211> 390
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (332)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (354)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (360)

cgcataagcc tgcgtcagat taaaacactg aactgacaat taacagccca atatctacaa 120
tcaaccaaca agtcattatt accctcactg tcaacccaac aaaaaaaaaa aaaaaaaana 180
aaa 183

<210> 927
<211> 432
<212> DNA
<213> Homo sapiens

<400> 927
cggaagtgga ggaaagatgg aggaccatca gcacgtgccc atcgacatcc agaccagcaa 60
gctgctcgat tggctggtgg acagaaggca ctgcagcctg aaatggcaga gtctggtgct 120
gacgatccgc gagaagatca atgctgccat ccaggacatg ccagagagcg aagagatcgc 180
ccagctgctg tctgggtcct acattcacta ctttcactgc ctaagaatcc tggaccttct 240
caaaggcaca gaggcctcca cgaagaatat ttttggccga tactcttcac agcggatgaa 300
ggattggcag gagattatag ctctgtatga gaaggacaac acctacttag tggaactctc 360
tagcctcctg gttcggaatg tcaactatga gatcccctca ctgaagaagc agattgccaa 420
gtgccagcag ct 432

<210> 928
<211> 439
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (86)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (413)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (415)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (439)
<223> n equals a,t,g, or c

<400> 928
agacaacctt agccaaacca tttacccaaa taaagtatag gcgatagaaa ttgaaacctg 60
gcgcaataga tatagtaccg caaggnaaag atgaaaaatt ataaccaagc ataatatagc 120
aaggactaac ccctatacct tctgcataat gaattaacta gaaataactt tgcaaggaga 180
gccaaagcta agacccccga aaccagacga gctacctaag aacagctaaa agagcacacc 240
cgtctatgta gcaaaatagt gggaagattt ataggtagag gcgacaaacc taccgagcct 300
ggtgatagct ggttgtccaa gatagtatct tagttcaact ttaaatttgc ccacagaacc 360

<221> misc feature
<222> (433)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (435)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (436)
<223> n equals a,t,g, or c

<400> 924
ccactccacc ttactaccag acaaccttag ccaaaccatt tacccaaata aagtataggc 60
gatagaaatt gaaacctggc gcaatagata tagtaccgca agggaaagat gaaaaattat 120
aaccaagcat aatatagcaa ggactaaccc ctataccttc tgcataatga attaactaga 180
aataactttg caaggagagc caaagctaag acccccgaaa ccagacgagc tacctaagaa 240
cagctaaaag agcacacccg tctatgtagc aaaatagtgg gaagatttat aggtagaggc 300
gacaaaccta ccgagcctgg tgatagctgg ttgtccaaga tagaatctta gttcaacttt 360
aaatttgncc acagaaccct ctaaatcccc ttgtaaattt aactggttag tccaaagagg 420
gacagctctt tgngnn 436

<210> 925
<211> 439
<212> DNA
<213> Homo sapiens

<400> 925
cccaaaccca ctccacctta ctaccagaca accttagcca aaccatttac ccaaataaag 60
tataggcgat agaaattgaa acctggcgca atagatatag taccgcaagg gaaagatgaa 120
aaattataac caagcataat atagcaagga ctaaccccta taccttctgc ataatgaatt 180
aactagaaat aactttgcaa ggagagccaa agctaagacc cccgaaacca gacgagctac 240
ctaagaacag ctaaaagagc acacccgtct atgtagcaaa atagtgggaa gatttatagg 300
tagaggcgac aaacctaccg agcctggtga tagctggttg tccaagatag aatctttagt 360
tcaactttaa atttgcccac agaacctcta aatccccttg taaatttaac tggtaagtcc 420
caaggaggac agtctttgg 439

<210> 926
<211> 183
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (179)
<223> n equals a,t,g, or c

<400> 926
caatctatca ccctatagaa gaactaatgt tagtataagt aacatgaaaa cattctcctc 60

agatttgctn anantcagat ctgtactnaa ttca 394

<210> 923
<211> 352
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (331)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (341)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (347)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (348)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (351)
<223> n equals a,t,g, or c

<400> 923
gcaaaacccc actctgcatc aactgaacgc aaatcagcca ctttaattaa gctaagccct 60
tactagacca atgggactta aacccacaaa cacttagtta acagctaagc accctaatca 120
actggcttca atctacttct cccgccgccg ggaaaaaagg cgggagaagc cccggcaggt 180
ttgaagctgc ttcttcgaat ttgcaattca atatgaaaat cacctcggag ctggtaaaaa 240
gaggcctaac ccctgtcttt agatttacag tccaatgctt cactcagcca ttttacctca 300
cccccaaaaa aaaaaaaaaa aaaaaaaacc ncgggggggg ncccggnncc na 352

<210> 924
<211> 436
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (368)
<223> n equals a,t,g, or c

<220>

<211> 394
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (268)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (286)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (294)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (318)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (370)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (372)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (374)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (388)
<223> n equals a,t,g, or c

<400> 922
gaaccgggta gcttggccag gttgtgagga accgcagcgc gccgcaggac cgggccgctg 60
agcctgcagc cgcccegcgc cgtgacctgc gaccctagac cccgactccc tttggctcag 120
cccgcgcgcc ccaggcccgg cccgggcggc gcgacgggag gatgagcggc gggcggcgga 180
aggaggagcc gcctcagccg cagctggcca acggggccct caaagtctcc gtctggagta 240
aggtgctgcg gacgacgcgg cctggganga taagataatt ttaagngtga ctantggttc 300
cgacaatatt ctgtgtcntg gtgtcaattt gggattttcc ataacaggtt cttggaatac 360

<220>
<221> misc feature
<222> (385)
<223> n equals a,t,g, or c

<400> 920
ggcacgagag attaagttag gacaagaagc aagagttcaa ggatagaagg cctactgaag 60
ctcgagtgat ttgagaaaac tttacaaagg tggaaaatct acgtgggcct ccgaaagtca 120
gatttgacaa gatcaaagct gcaggaaaat ggacagtgag gttcagagag atggaaggat 180
cttggatttg attgatgatg cttggcgaga agacaagctg ccttatgagg atgtcgcaat 240
accactgaat gagcttcctg ancctganca agacaatggt ggcaccacag atctgtcaaa 300
gancaagaaa tgaagtggac agacttagcc ttacagtacc tccatgagaa tgttcccccc 360
attggaaact gacgtttggc tnctntcttg tggatggatt ttctcaaagt acacagataa 420
agcatggttg tttcagtcgt cc 442

<210> 921
<211> 444
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (302)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (378)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (430)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (440)
<223> n equals a,t,g, or c

<400> 921
caatggcggg cgcccctccc ccagcctcgt tgccgccttg cagtttgatc tcagactgct 60
gtgttagcaa tcagcgagac tccgtgggca taggaacctc cgagccaggt gcgggatgta 120
atctcgtggt gcaccgtttt ttaagccagt ccgaaaagcg caatattcgg gtgggagtga 180
cccaatttc caggtgcgtc cgtcacccct ttctttgact cggaaaggga actccctgac 240
cccttgcgct tcccaagtga ggcaatgctc tccctgcttc ggctcgcaca cggtgcgcgc 300
anccactgac ctgtgcccac tgtctggcac tccctagttg agatgaaccg gtacctcaga 360
tggaaatgca gaaatcancc gtcttctgcg tcactcatgc tggagctgta gaccggagct 420
gttcctaatn cggcatttgn tcct 444

<210> 922

<220>
<221> misc feature
<222> (178)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (179)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (215)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (230)
<223> n equals a,t,g, or c

<400> 919
nagccctgcg gatggtcctc catggntccc tagtgccctg gagaggaggt gtntagtgaa 60
agagtagtcc tgggaagatg ggcctctntg aagnagccac ggggacagca tcntgcagat 120
ggtcctggcc cttntcccac cgacctgtct acaagnactg tgcctcgtgg accctccnnt 180
ctggcacagg aagctggacc ctaaagtccc ttgtnccacc ggccaggaan tggtagcc 238

<210> 920
<211> 442
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (262)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (268)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (303)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (382)
<223> n equals a,t,g, or c

cactgaaggc atccgtggtt gtttttaagc cacaaaaaag ccacanccaa gatcacntga 300
caaccaccct gacaagtgtt ccatgatgtt gggnccngag ggaggtgaag gtttttgtgg 360
tcaagttcct tggnctgccc tgtncccgtt tttttgagga cgtgcanaan ttccctttttg 420
actgaangnt tcaagttggg gccccaaggt tccatttaat nacattgggg gggcaagcaa 480
nattggtgng gttttttttga attggttcaa aggtgtttna aaatgnccc 529

<210> 919
<211> 238
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (26)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (53)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (88)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (94)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (113)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (134)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (156)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (407)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (410)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (427)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (429)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (461)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (481)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (489)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (519)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (526)
<223> n equals a,t,g, or c

<400> 918
ggcagagctt tttcctcctc ggctgcggcc gttgtcctcg gagcgcggtc cctgtattgg 60
tctcctgctc ctagaggttg agaacaaaaa catgcacctg gagtttcccc ggagccctct 120
gcgtggttga gcttcggtgg aatttcgggg ctcttggctg ccagcgcgct tgcctggtag 180
caacagaaac cagtcctgct cgcctccgtg gacatttcat taccatccag aagtgtctcc 240

<220>
<221> misc feature
<222> (207)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (228)
<223> n equals a,t,g, or c

<400> 917
tcgacccacg cgtccggctt ctccgctcct tctaggatct ccgcctggtt cggnccgcct 60
gcctccantc ctgcctctan catgtccatc anggngaccc agaagtccta caaggngtcc 120
anctctgggc cccggggctt cagcagccgn tcctacacga gtgggnccgg ttcccgcatc 180
agctcctcga gnttctcccg agtgggnagc agcaactttc gcggtggnct 230

<210> 918
<211> 529
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tnacaacgta acacaangct tacttatagc acccaacaaa antgtctctg tgganccact 120
tcccagtgaa ctaca 135

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cctctccctt ccaaattctt ggtgccacca ttgagaaact ccaggattgt cctgcagatc 120
gacaacgccc gtntggctgc agatgaactt ccgaaccaag taagtntctc tntcctgggg 180
gctgcagaag ccaggactgg ggtaggggtt gggggtttta ggaatntgcc ctcacctagc 240
ctagatggcc tgaagctaaa caccccctatg gactcctgaa ctctggggag gtagggaagt 300
cttcagagat gctgaggaag ctctgcctgg ctgcaactat tttccttgaa aggtttgaga 360
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aacgccttcg ccttcggtcc ggagctcagc agcctcatca cgccgctcgc catccagacc 120
cacaactttg ccgccgtggc cgncgccgcc tactaccgca gtcagcagca gcagcagcag 180
cagggcctgg cgccccccgc gcagcgccgg cgccgcccag cgcgaccctc cccgccgggg 240
ccgccgcacc tccctcgccg cccttcagct tccanctgcc gcgccggcct tgtccgantc 300
gcccgtgttt ngangcggcc cccaagcncc ccgggattcg ctgttcggaa cgggaaagta 360
acttaaancg ggttcct 377

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gccatcctgg cttcgggggc gccggcctcc aggccccggg aaggagaact cctagggcta 120
ctaaatcctc gctggaggng ntggcttctt atgcgggagg acgtggcgga gggcctgact 180
ttgggagccg gggttgact ggattggtga ggcccgtgtg gctacttctg tggaagcagt 240
gctgtnagtt actggaagat aaaagggaaa gcaagccctt ggtgggggaa atatggctgc 300
gatgatggca ttcttaggac accttggnta ntantgaaac aantanctct gagca 355

<210> 914
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<210> 912
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atacgctatt gtcctgcccg ttagagcagc cagcgggtac agaatggatt ttggaagagg 120
gagtcaccac tggacctcca aggaagccac gtgcagacat ctacaacctt cgatctcctg 180
acgagtttat tgttggccaa aaccaggctt tgattgaacc aggatgaatg cgggtgttgg 240
aagtagaata tatatataca tataaaattg gttgggagcc acgtgtacca gtgtgtgttg 300
atcttggctt gattcagtct gccttgtaac agaactggcg atggaatatg agaggagccn 360
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gtgaatcccg cctcccctct cagccagaac tgtggactcg tcccggggag gggcggtggg 180
tggggcgggg ctggcgggaa atttcggttt tggcgcgctc cctgcggcga cgctccatcg 240
tgcgctctcc tcttcccccg gtggtctcct cgctcgcctt ctggctctgc atgccctgct 300
ctgaagagac acccgccatt tcacccagta agcgggcncg gntgcggaag tgggcggcat 360
gcagnnccgn tttgcncggt tttcgagcaa gccaaggccc caacggggtt ngggcgcgcg 420
ggggttaaga ctgtaaaatg gctangatta aacataccac tatggagaaa ttttntgaaa 480
nggaattcaa aanngtcctt ttggngtaat gaaaatggtc aagtnaggtt ggtgaaaaat 540
ttttgattag actgggtaaa atga 564

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tggttttgtt ttcaattttt attcactctt catagaatca caattacctt tatatatcat 180
atgttattgg aagagattcc tcagtaatct ccaatctctc atagtgcctc acagggttgg 240
tcaatggctt ttggaactgg aaggacctta gaacttatct gttatgctcc tgatagccaa 300
tagcagatag aagcttgcaa tcaagagggt aggacatgtg ttcttcaatg gatatcaaag 360
gaagaggttg caaaccaaag ccatttggca agccctgtag cctgggccat ttaagacagg 420
ggcggtctca gccaaattgc acccatttaa ctatcccaaa gagccacaag tgcctacaac 480
ccaggcccta agttgatgaa gaaaaagtca aggaangagg tgatcaattg gaaatattcc 540
catcaaatgg gtaaacttat ttagaaaatg ggcatattag aaaaagcctt ccaagatgat 600
tttggataat aaaagtggat ttgnggnaat gggaataact ctggttaagc cctacattat 660
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g 721

<210> 911
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aagaacactt gattagtctc attagcacct gtagctactt ttctaaagtt aattcctgaa 180
ggcccttgaa agcttcacta tgagattgaa tttgcaccat tnctncaatg gtctttgcaa 240
tgagggatgg gggatagtgt gatggtcctt nccaaccatc cctggaagaa gaagccaaaa 300
aactttttcc cgaaaggagt tctttcaccn aagnagntcc catctgggca ggaaattacc 360
tccgggnaac ana 373

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taaccaagca taatatanca nggactaacc cctatacctt ntgcataatg aattaactag 180
anataactnt gcaaggagag ncnaagctaa gacccncgaa accagacgag ctacctaaga 240
acagntaaaa gagcacaccc gtatatgtag caaaatagng ggaagattta tnggtagagg 300
cnacanacct accgagcctg gngatatgct ngntgtccaa gataagaatc ntaggttaac 360
ttttaaattt ggccacagaa cccttttaaa tcccnttgga aatttaactg gtaagcccaa 420
agaggaacaa gtttttttgga cactngggaa aaaaccttgn anaanagag           469
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aaggcggctt ctgattttaa gggtattttt agaattcatt cctgaatgan gggttcagac 180
acccagtctc ctcggaacag gggtgagggg tcgactganc tttgttgaga agcctccagt 240
taaggcttcg ggcgggtctc catgttgtat tgtgtgttta ctgagcttcc cactggttag 300
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tcccctgnng tccccttcga accctgaagc cctctggtgc gcgctctgcc cgatgcacag 180
ccacctaagc nagcccccag gttagaaacg tgggttaaag ctcttgcctg ccccgttaaa 240
gcttcactcc naccctttta agcgtcctgc cccttcacct tgaacccggg ttcccccatt 300
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<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (292)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (294)
<223> n equals a,t,g, or c

<400> 904
ggctgaggag agggcggaag tgtccgcacg tcgggcctcc gaggcttctc tttctcccct 60
ggcggtccgg ctctcgatgg tggcgtgacg ggggcggggg tggcggngcg ttctcctcgg 120
ttgggaagga accagcccgc gaacccaggn cgggaagggg gntcggcctn ngggggaang 180
gactgacatg tctctcgaag acccctttt tgtagtccga ggcgaggtgc agaaagcggt 240
gaacacgggn ccgcgggctg taccagngct ggtgcganct cctgcaagaa ancncggcgt 300
tcggaacgc 309

<210> 905
<211> 388

<222> (177)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (273)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (305)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (309)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (351)
<223> n equals a,t,g, or c

<400> 903
attcggcacg agagtattta gttggggcat gaataagtaa agtatgtaaa gaggcgtgat 60
agtnagggct gagtgggtat caccttctcg gtgagaaaat caatttcctg agagtnttgt 120
aaactaggac ttagagtact aatcatggtg tttttcagaa attatatata tattttnaag 180
tcagggtctc accgtgtcgc ccaggctgga ggcagaggtt gtggctcgtg ccgaattcga 240
tatcaagctt atcgataccg tcgacctcga ggngggggcc cggtacccaa ttcgccctat 300
tagtnagtng gtattacaat tcactgggcc gtcgttttta aaacgggggt nactggggaa 360
ac 362

<210> 904
<211> 309
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (107)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (150)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (162)
<223> n equals a,t,g, or c

<221> misc feature
<222> (343)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (386)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (391)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (407)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (420)
<223> n equals a,t,g, or c

<400> 902
atttcctggc tgacctgcta gtccccacaa aagccaggtt ccctgcattt gaactctgaa 60
aggatagcat gccacctgca actcactgca tgaccctttc tgtatattca aacccaagct 120
aagtgcttcc gttgctttcc aaggaaacaa agagtcaaac tgtggacttg atttgttag 180
ctttttcag aatttatctt tcattcagtt cccttccatt atcatttact tttacttaga 240
agtatccaag gaagtctttt aactttaatt tccatttctt cctaaaggga gagtgagtga 300
tatgtacagt gttttggaga tgtatacata tattccagaa ctngggggaa tcttattaag 360
ttatggatat accaccgtaa cggtcnaaaa ngtttaaaga acccatncgg taaggtaatn 420
ggg 423

<210> 903
<211> 362
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (64)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (116)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (36)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (97)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (335)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (341)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (348)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (349)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (358)
<223> n equals a,t,g, or c

<400> 901
ggcacgagga cagtctgcct gggncacagc cctctnaccc tggtactgca tgcacgcaat 60
gctagctgcc cctttcccgt cctgggcacc ccgagtntcc cccgaccccg ggtcccaggt 120
atgctcccac ctccacctgc cccactcacc acctctgcct agttccagac acctccacgc 180
ccacctggtc ctctcccatc gcccacaaaa gggggggcac gagggaacga gcttagctga 240
gctgggagga gcagggtgag ggtgggcgac ccaggattcc ccctcccttc ccaattaaag 300
atgagggtat taaattgtct tggtttttaa tttantatta nttttttnnt ttttccan 358

<210> 902
<211> 423
<212> DNA
<213> Homo sapiens

<220>

<221> misc feature
<222> (161)
<223> n equals a,t,g, or c

<400> 899
ggcacgagct tgttcgtctc actggtgtga ctccagcatc ccctttgctc gaaatggacc 60
ccaactgctc ttgcgccact ggtggctcct gcacgtncgc cggctcctgc aattncaaag 120
agtgcaaatg nacctcctgc aanaagagct gctgttcctg ntgccccgtg ga 172

<210> 900
<211> 101
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (29)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (40)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (54)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (89)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (99)
<223> n equals a,t,g, or c

<400> 900
gcagcagcac aggcgcgggt cccgggaang gccggctctn ctcgcgccta gatntggaat 60
ctccttcacg aaaccgactc ggctgtggnc accgcgcgnc g 101

<210> 901
<211> 358
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (24)

<220>
<221> misc feature
<222> (359)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (362)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (366)
<223> n equals a,t,g, or c

<400> 898
ggcacgaggg ggaaatcgcg gtcttagcat ccggcgcgcg gcggttggaa ttgctgcgcc 60
cacgaggcaa ccgctccgga acgccangtg ggggcgaggc gtctcggagt ctcagagaca 120
ccaaggcccc tgcgacaagg tggctgcagc taggccgggg gcgtcaggac gacggnagcg 180
ggttcgggtc ggtgacacgc agacctgagg gagctgggcc cgcntnttcc gcccgcgccc 240
cagcccttgc agatcgagat ttgcgtccta nnatggggaa aaaagcagag gccagggcgc 300
cgattttatt tggagagaag caagcttctt tgncntcttt tgggattagg aaatttcana 360
cntggnaaaa atggtgtgtg gtt 383

<210> 899
<211> 172
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (97)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (115)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (131)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (143)
<223> n equals a,t,g, or c

<220>

<222> (68)
<223> n equals a,t,g, or c

<400> 897
ggcanaggna gagagagaga gagaactagt ctcgtgtttt tttttttttt ttttgggnna 60
aaaatttnat tt 72

<210> 898
<211> 383
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (87)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (176)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (224)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (226)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (271)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (272)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (333)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (335)
<223> n equals a,t,g, or c

tagaatctta gntcaacttt aaatttgccc acagaaccct ctaaatcccc ttggaaattt 360
aactggtagt ccaaagagga acagctcttt ggacactagg aaaaaacctt ggagagagag 420
taaaaaattt aacacccata gtaggcctaa aagcagncac caattaagaa agcgntcaag 480
ctcaacaccc actacctaaa aaatcccaaa catataactg aactnctnac acccaantgg 540
accaatctat cancctatag aagagctaan ggtaggataa ggaacatgaa aacatt 596

<210> 896
<211> 351
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (183)
<223> n equals a,t,g, or c

<400> 896
gaaagaagga aactagctcg gaccgtgcag gtttgtaggt ctgttggcct gtaggtttcg 60
gcacaagttt cagcgagaga aggagaaaac tgccttggtt ggaaccttgc agtgcaggga 120
aaggggtgtg gcggcctttg ctggggaaat ggcggacgac aagtggggcg gaggaggcct 180
gcntccggaa agtcagtaga attcatcaca agagagctac aagagcctgg aagaagctga 240
agacttgcta ccctccatcc ttacttcacc ctgggacctg aggagacctc ttcaatcaga 300
aatggaaaca gagagattct cctgggaaac ccctgcccca taaacggccc t 351

<210> 897
<211> 72
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (5)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (9)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (58)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (59)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<220>
<221> misc feature
<222> (283)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (312)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (457)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (475)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (525)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (528)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (537)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (553)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (570)
<223> n equals a,t,g, or c

<400> 895
gcccacgcgt ncgcccacgc gtccgagaaa ttgaaacctg gcgcaataga tatagtaccg 60
caagggaaag atgaaaaatt atagccaagc ataatatagc aaggactaac ccctatacct 120
tctgcataat gaattaacta gaaataactt tgcaaggaga gccaaagcta agaccccga 180
aaccagacga gctacctaag aacagctaaa agagcacacc cgtctatgta gcaaaatagt 240
gggaagattt ataggtagag gcgacaaacc taccgagcct ggngatagct ggtgccaaga 300

<220>
<221> misc feature
<222> (76)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (129)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (403)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (404)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (405)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (453)
<223> n equals a,t,g, or c

<400> 894
gcggnacgcg tgggtggnac ccacgcgtcc gtcgacccac gcgtccgcga cctgggcaat 60
tatcccaaca aattanactc ccctctgtca tgtcaatatt ggaattgtag ctcacaggtg 120
tttgcttana tcagtcatcc agagaggaag aatgatagag aaaacttgtg ctctgacact 180
actgattctt acatagtgga acaatatctt tcttgataat gaattgtagt tattataaat 240
cggtgatcac gtgaccctaa aggcacccaa ataaatcttt agtaaaataa ttctgatgac 300
acaatgaatg aattattttt aaggcatttt cttggactag caatgtattc ttagagtggc 360
gactgaatgt gcatacctca atgatccatg ttttactcat tcnnnggtcc ccaggccacc 420
cagggcaacc aggccctcct ggacctcctg ggn 453

<210> 895
<211> 596
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (11)
<223> n equals a,t,g, or c

<211> 307
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (228)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (264)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (289)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (305)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (307)
<223> n equals a,t,g, or c

<400> 893
ggaatgacaa accctttgaa tgaaattgtg gcacaaaatc tgttcaggtt ggtgtaccgt 60
gtaaagtggg gatggggtaa aagtggttaa cgtcactgtt ggatcaacaa ataaaggtta 120
cagttttgta agagaagtga tttgaataca tttttctgga actattcata atatgaagtt 180
ttcctagaac cactggagtt tctagtttaa tagtttgcta tgcaatgnac cacctaaaac 240
aatactttat attgttattt ttcngaaaga ctcaaaacac ctgtaattnt aaaccttaat 300
atganan 307

<210> 894
<211> 453
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (5)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (18)
<223> n equals a,t,g, or c

<210> 891
<211> 130
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (87)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (90)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (96)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (103)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (129)
<223> n equals a,t,g, or c

<400> 891
ggcacgagcg gcacgagggg gggcccggta cccaattcgc cctatagtga gtcgtattac 60
aattcactgg ccgtcgtttt acaactncgn gatganggaa atntaaaata cttccgagct 120
cgtatgttnt 130

<210> 892
<211> 421
<212> DNA
<213> Homo sapiens

<400> 892
gcactgaaga acattactga gggggctaac cttggggact ccaatttgcc aatgatgagg 60
gaacatttga aagaactgca aattgtcctt gccagctctt gggatccttg gatacctggg 120
gccatttaag aagctagggg aattaggcca caacaccccc tgggacatcc gaaagctaca 180
ccacagatgc cagtggttca tgccttcttc ccgcaacttt aggaaaattt atttatttat 240
tgtttattag ttatgggggg agaggggaga tttaaaggac cagggacatg ggaaccaagc 300
catagggatc agaggggctt gtccttgaac actactgggg tatattcagg ctcatccacg 360
cagctgctgg gttcttgccc taacggccct cccctgcaac atccgtcttg gaggagaggc 420
t 421

<210> 893

<221> misc feature
<222> (224)
<223> n equals a,t,g, or c

<400> 889
ggcanagttt tttttttaa anaaggngaa aacacatgna atttnatttt tntttaacct 60
taagnttgcc aacttcttnc cctgaacagc atttntcttg ttttgatacc cacctacact 120
tatattagaa angnnctgca aactatttag ngactccnct ttnaattnat ggncgtatgc 180
ctnaagaatg ttttgaaata taaagcctat cccgtttgcc cagnttgtaa atttcagg 238

<210> 890
<211> 225
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (123)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (185)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (204)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (217)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (223)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (224)
<223> n equals a,t,g, or c

<400> 890
acccacgcag tccgcgcgtc ctccatcacg tgtctgttct ctggggaggc agtaaggggc 60
cgtggagctg gcctcggcct cggcatcggg agaggctgga cttcctgtct ctctgtgctg 120
aanggctgcg atggcgcccg ctctcactga cgcagcagct gaagcacacc atatccggtt 180
caaantggct cccccatcct ctancttgtc ccctggncag tgnng 225

<220>
<221> misc feature
<222> (95)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (132)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (134)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (135)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (151)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (158)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (163)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (168)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (173)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (183)
<223> n equals a,t,g, or c

<220>

<223> n equals a,t,g, or c

<400> 888
gccctatagt gagtcgtatt acaattcact ggccgtcgtt ttacaacgtc gtnatgtggn 60
aaaccnnnta at 72

<210> 889
<211> 238
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (5)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (22)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (27)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (39)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (45)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (52)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (65)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (79)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (586)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (621)
<223> n equals a,t,g, or c

<400> 887
gggacacggc ggtcgttttc ccgaaaacat gggccctccc atgggccatt tgctccctgg 60
aggccctcgc gtcttgctga gcccggggag ttaggatgac gcgagcggtg agggagcccg 120
gaacgattcc ttcgcggaac aattgaggcg aagcctttgg gagtactttg tgggacggac 180
cctggcgggc cctgccanac ncacanggat ggcggcggaa gcggccgatt tggggctggg 240
ggccgccgtc cccgtggaac tnaagcggga gcgacgcatg gtgtgcgtgg agtacccggg 300
aattggtgcg tgatgtggct aaaatgctgc ccactctggg cggggaaaga aaggggtctc 360
cccggatctt acccagaanc cccccnagaa agcttgggan cttgtttctt cccggggccc 420
aaggaaccca ttacttgncc ccccccgntg tttgggccca aacccgcttt ccanttacca 480
ancaanccct gcttgcttcc ccctttccnn ggnaaaaaaa aaaacaaaag gggggggaa 540
aaaaaagggg ttntcttggg ggccccttta aaggnccccc tncccnaagg ttccccttttt 600
tgaaaattgg gaaaaatcct ntgggggttc cttcttcccc cccctttt 649

<210> 888
<211> 72
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (53)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (60)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (66)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (67)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (68)

<220>
<221> misc feature
<222> (448)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (474)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (482)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (486)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (509)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (510)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (513)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (553)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (575)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (582)
<223> n equals a,t,g, or c

gacctgcaga gccctgctgc gcagangtgc tgttttccag ccctccccaa atgcattctt 60
caggtgcgtg tctgaagatc ttggttttgc tgtgcttgan acacagctga tgctttannn 120
gctcaggttt actggcttta taacagtngg cataacgcct aaagcatccc ctctgcacgt 180
gactgagcat gtncttaacc agaggagctg aacggagtgc agaaaatagt agttttaggg 240
cttagtgagc agaggaagca gcttctctgg tgctttattt aatagaacat ttaagagtgc 300
tca 303

<210> 887
<211> 649
<212> DNA
<213> Homo sapiens

<220>
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<222> (198)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (201)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (206)
<223> n equals a,t,g, or c

<220>
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<222> (262)
<223> n equals a,t,g, or c

<220>
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<222> (379)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (386)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (400)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (438)
<223> n equals a,t,g, or c

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (49)
<223> n equals a,t,g, or c

<400> 885
gncctatagt gagtcgnatt acaattcact ggccgtcgtt ttacaaccnc gt 52

<210> 886
<211> 303
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (26)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (100)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (118)
<223> n equals a,t,g, or c

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<220>
<221> misc feature
<222> (120)
<223> n equals a,t,g, or c

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<221> misc feature
<222> (148)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (193)
<223> n equals a,t,g, or c

<400> 886

<220>
<221> misc feature
<222> (257)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (263)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (280)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (282)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (284)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (333)
<223> n equals a,t,g, or c

<400> 884
aattcggcac aggtgaatcg cagcttctga gaccagggtt gctccgtccg tgctccgcct 60
cgccatgact tcctacagct atcgccagtn gtcggncacg tcgtccttcg gaggcctggg 120
cggcggctcc gtggcgtttt gggccggggg tcgcctttcg cgcgcccagc attcacgggg 180
gctccggcgg ccgcggcgta tccgtntcct ccgcccgctt tgtgtcctcg tcctcctcgg 240
gggcctacgg nggtggntaa ggngggggtc ctgaaccgcn tncnaacggg gtgctgggcg 300
ggcaacgagg aagcttaaac catgcagaac ctnaacgacc 340

<210> 885
<211> 52
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (2)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (17)

<220>
<221> misc feature
<222> (440)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (448)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (451)
<223> n equals a,t,g, or c

<400> 883
gnccaatnta tcaatcacgc actgcactca tcagggcaaa cctgggtacg cctgncaggt 60
caccggtncc ggnaattccc gggtcgaccc acgcgtccgc ccacgcgtcc gcccacgcgt 120
ccgcccacgc gtccgctcgt gccatgatct gtatttaatg gtttttattt ctcgggtgca 180
tttgagagaa gccacgctgt cctctcgagc ccagatggaa agacgttttt gtgctgtggg 240
cagcancctc ccccgcagcg gggttaggga agaaaactat cctgcgggtt ttaatttatt 300
tcatccagtt tgttctccgg gtgtggcctc agccctcaga acaatccgat tcacgtaggg 360
aaatgtttaa gganttctgc agctatgngc aatgtggcat gggggggcgg gcagtcctgc 420
ccatgtgttc cctcatctgn tcagccancg nc 452

<210> 884
<211> 340
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (90)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (96)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (206)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (251)
<223> n equals a,t,g, or c

<222> (117)
<223> n equals a,t,g, or c

<400> 882
ggcanagggn aaaaccccgc ctctactaaa aatacaaaaa aaaaaaaaaa aaaaaaaaaa 60
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa naaaaaaaaa aaanaaaana aanaaan 117

<210> 883
<211> 452
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (2)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (8)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (55)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (68)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (73)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (246)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (374)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (388)
<223> n equals a,t,g, or c

<221> misc feature
<222> (147)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (154)
<223> n equals a,t,g, or c

<400> 881
ggcagaccna acatagattt aantaaatac attancgggg gtaaaaatga aaatcntaac 60
ccaagacatg aacattttta gctgtaactt aactattaag gccttttccc acacgcntta 120
atagtcccat tttctntttg gncattngtg gctntgcccc at 162

<210> 882
<211> 117
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (5)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (10)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (91)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (104)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (109)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (113)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<220>
<221> misc feature
<222> (111)
<223> n equals a,t,g, or c

<400> 880
ggcanagcgg cattgggagg ggcgctctga gattaaagag ttttacctct gaaaaaaaaa 60
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaanaaa aaaannaana na 112

<210> 881
<211> 162
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (9)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (23)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (35)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (56)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (117)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (136)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (142)
<223> n equals a,t,g, or c

<220>

gcaaagaatt gatatnttag atggnttnta atacntcagc agatttgtct ttncg 295

<210> 879
<211> 441
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (430)
<223> n equals a,t,g, or c

<400> 879
ctgaggttta cagttagaaa atgttctcaa aggtttatca gttatgtatt gatgattggt 60
aatctagacc ctctggaggc tgtagaatgt gaaaagatac agctgagctg acaagtttta 120
gggcactatc ttctggaatg aaatcggcca agaaaatggt tcaagggcat gggggttaga 180
gaatgtttct tttacctaaa aatgttaagc caactatgga agattggggt cgtgggggca 240
tgaaatacaa aattatgata atttatacag aactaggttt ctttatgttc tgcaagaagg 300
tttttattag ctaatttggg gaggggggcc atgctgcagt atttttttc ctggggaaca 360
tgccatttct gatggggaag ttattttgtt tacaagagtt ggtttaccac acaaccctga 420
atgaatgtgn caatggccta a 441

<210> 880
<211> 112
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (5)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (97)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (105)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (106)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (109)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (192)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (197)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (198)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (225)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (256)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (265)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (268)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (275)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (293)
<223> n equals a,t,g, or c

<400> 878
aatncggcac gagagacagt ttgctaattt aaaaatgtag catnccattn gtatntatnn 60
cnctcccnng ccaaaaagat tnnctaatac tgcttgtacc agccagagaa agatccaaaa 120
cactacncag cnctctngca cngaggaaat ntttccccn acatngactc cnggcctaca 180
tcagccaaac nnaaccnngg tggggtttgg atttgatagc caatnagttc tgtgctggtt 240

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (83)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (127)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (132)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (137)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (142)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (151)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (160)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (165)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (172)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (191)
<223> n equals a,t,g, or c

<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (4)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (44)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (50)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (55)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (59)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (60)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (62)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (68)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (69)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (82)

aattcggcan agcgggaatg ctaatagnga aaatggggag caggaggctg acaatgaggt 60
agacgagnaa gaggaagaag gtggggagga agaggaggag gaagaagaag gtgatggtga 120
ggaagaggat ggagatgaag atgaggaagc tgagtncagt tacgggccaa gcgggcagct 180
gaagatgatg aggatgacga tgtcgatacc aagaagcaga agaccgacga ggatgactta 240
gacagcaaaa aaggaaaatt taaacttaaa aaaaaaaagg ccnccgtgac ctttttaccc 300
tccatttccc ttttcagatt ttaaacgtgg tcacctttcn gttagaaggg ccccccccnnc 360
cancnttggg aattcccntt tccnnnnttt nncaggggtt ttttcannnn cccnnncccn 420
aaccttgggn tttttnaana ggggngggna aaannnccca atttttnngg nccntttttt 480
tttttnaaan ntttttnnan ggntttt 507

<210> 876
<211> 190
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (24)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (37)
<223> n equals a,t,g, or c

<400> 876
ccaccttact accagacaac cttnggcaaa ccttttnccc aaataaagta taggcgatag 60
aaattgaaac ctggcgcaat agatatagta ccgcaaggaa agatgaaaaa ttataaccaa 120
gcataatata gcaaggacta acccctatac cttctgcata atgaattaac tagaaataac 180
ttttgcaagg 190

<210> 877
<211> 315
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (270)
<223> n equals a,t,g, or c

<400> 877
cagcagccaa aggcttgtcc ctgactttat atggctgctc ctggcgagcg actgagtcgt 60
ccgtgaggaa aaagaggcga ggcttttccg agatcgtctc agcgatggcg cttcggtcgc 120
ggttttgggg gttgttctcg gtttgcagga accctggtaa ttagtcttgc ccccсttctc 180
ccagctcact cgcctgggct tgcacagtac attggaacgt gcgggttcta ttttgtattc 240
gacgtgccgg atcgaaatag agctcgcggn actgcgaaga ccacagtagg aagttaagga 300
cggggtcagt gctga 315

<210> 878
<211> 295

<220>
<221> misc feature
<222> (468)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (471)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (474)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (486)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (490)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (491)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (497)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (498)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (500)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (503)
<223> n equals a,t,g, or c

<400> 875

<220>
<221> misc feature
<222> (420)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (430)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (436)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (439)
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<220>
<221> misc feature
<222> (445)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (449)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (454)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (455)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (456)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (467)
<223> n equals a,t,g, or c

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (387)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (391)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (392)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (407)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (408)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (409)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (410)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (414)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (415)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (416)
<223> n equals a,t,g, or c

<222> (156)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (283)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (340)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (358)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (359)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (363)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (365)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (378)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (384)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (385)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (386)

<220>
<221> misc feature
<222> (50)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (53)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (58)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (73)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (75)
<223> n equals a,t,g, or c

<400> 874
agagagagag agagagagag agagagagag agagagagag agagagagcn cgngccgnat 60
tcggccccac atntntcatc acca 84

<210> 875
<211> 507
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (10)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (28)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (68)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<220>
<221> misc feature
<222> (318)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (327)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (348)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (363)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (368)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (422)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (424)
<223> n equals a,t,g, or c

<400> 873
ctggcctcct gtcttagcct tcctgggctg tgtctggagc ctgggacctt gcttgtgggg 60
taaaagcaac agaacacttg cccttcccaa aatgaaggga gaggagatgg ggcttctctt 120
cctctcccct gagtgggaaa ggagctctgg gggctggtcc ttcagcacag aggaggggtc 180
actgaaagcg ttattgacca gctgctgtac cttctgcatc tcactccacg ctcactgcct 240
ttttctcttc cttgcattgg ctcctgtgcc tgtgccggct cctgcaaatg caaagatgca 300
aatgcacntc cttgcaanaa gagtgantgc aggcctttcc tgcgaatntg ggggatgggc 360
canttaanca ggaaccagac ttgcagcagg gcaggcatga cagtttccca aacctcttta 420
anangattca att 433

<210> 874
<211> 84
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (85)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (126)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (132)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (188)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (197)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (198)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (221)
<223> n equals a,t,g, or c

<400> 872
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ctcgctaacc tngccttacc ccncnctatt aacctactgg gagaactctc tgtggctagt 120
aaccangttc tnctgatcaa atatcactct cctacttaca ggaactcaac atactagtgc 180
acagcccnat actcccnntg acatatttac cacaacacaa ngggggct 228

<210> 873
<211> 433
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (308)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (435)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (484)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (510)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (533)
<223> n equals a,t,g, or c

<400> 871
ggncganacc aaccctcact aaagggaaca aaagctggag ctccaccgcg gtgcggccgc 60
tctagaacta gtggatcccc cgggctgcag gaattcggca cgagcgaaga tgaaattaac 120
cgccgcacag ctgctgagaa tgagtttgtg gtgctgaaga aggatgtgga tgctgcctac 180
atgagcaagg tggagctgga ggccaaggtg gatgccctga atgatgagat caacttcctc 240
aggaccctca atgagacgga gttgacagag ctgcagtccc agatctccga cacatctgtg 300
gtgctgtcca tggacaacag tcgctccctg gacctggacg gcatcatcgc tgaggtcaag 360
gcacagtatg aggagatggc caaatgcagc cgggctgagg ctgaagcctg gtaccagacc 420
aagtttgaga ccctncaggc ccaggctggg aagcatgggg acgacctccg gaatacccgg 480
aatnagattt cagagatgaa ccgggccatn cagaggctgc aggctgagat cgncaacatc 540
aagaaccagc gtgccaagtt ggaggccg 568

<210> 872
<211> 228
<212> DNA
<213> Homo sapiens

<220>
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<222> (10)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (72)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (83)
<223> n equals a,t,g, or c

<220>
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<222> (378)
<223> n equals a,t,g, or c

<220>
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<222> (415)
<223> n equals a,t,g, or c

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<222> (442)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (474)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (492)
<223> n equals a,t,g, or c

<400> 870
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gccctctgtn gacctatcct tccagccctc gaagcccctg agcaagtcca gctcctctcc 120
cgagctgcag actctncagg acatcctcgg ggaccctggg gacaaggccg acgtgggncg 180
gntgagccct naggttaagg cccggtcaca gtcagggncc ctggacgggg aaagtnctgc 240
ctggtcggtc tcgggcgaag acagtnggga ncagcccgag ggtcccttga cttccaggtn 300
cccccggttc gcccaagtgg nctccggccc cgtaggttac aacatttncg antnngnccc 360
atcacgcnag ggcaaganat tagagaggga cgctttaaga gcagagcaca gcttnattca 420
gagaagttcc aggataaccc anttcgtttc ttgagtttac atcccttttt tggnggataa 480
aaagcatctt tngccat 497

<210> 871
<211> 568
<212> DNA
<213> Homo sapiens

<220>
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<222> (3)
<223> n equals a,t,g, or c

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<221> misc feature
<222> (7)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (266)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (271)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (300)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (321)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (348)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (352)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (354)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (355)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (357)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (368)
<223> n equals a,t,g, or c

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<210> 870
<211> 497
<212> DNA
<213> Homo sapiens

<220>
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<222> (27)
<223> n equals a,t,g, or c

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<221> misc feature
<222> (28)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (70)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (136)
<223> n equals a,t,g, or c

<220>
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<222> (178)
<223> n equals a,t,g, or c

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<222> (182)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (191)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (218)
<223> n equals a,t,g, or c

<220>
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<222> (236)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (329)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (337)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (398)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (547)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (548)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (555)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (583)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (588)
<223> n equals a,t,g, or c

<400> 869
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ctgcaacacc ccaacaggcc caggaagtac acgagaagct ccgaggatgg ctgaagtcca 120
acgtctctga tgcggtggct canagcaccc gtatcattta tggaggctct gtgactgggg 180
caacctgcaa ggagctggcc agccagcctg atgtggatgg cttccttgtg ggtggtgctt 240
ccctcaagcc cgaattcgtg gacatcatca atgccaaaca atgagcccca tccatcttcc 300
ctacccttcc tgccaagcca gggactaanc agcccanaag cccagtaact gccctttccc 360
tgcatatgct tctgatggtg tcatctgctc cttcctgngg cctcatccaa actgtatctt 420
cctttactgg ttatatcttc accctgtaat ggttgggacc aggccaatcc cttctccact 480
tactataatg gttggaacta aacgtcacca aggtggcttc tccttggctg agagatggaa 540

<400> 867
ccgcgcgccc gtcccgtcgc cgccgccgcc gccgcagacc cctcggtctt gctatgtcga 60
gctcacccgt gaagcgtcag aggatggagt ccgcgctgga ccagctcaag cagttcacca 120
ccgtggtggc cgacacgggc gacttccacg ccatcgacga gtacaagccc caggatgcta 180
ccaccaaccc gtccctgatc ctggccgcag cacagatgcc cgcttaccag gagctggtgg 240
aggaggcgat tgcctatggc cggaagctgg gcgggtcaca agaggaccag attaaaaatg 300
ctattgntaa actttttgtg ttgtttggag cagaaatact aaagaagatt ccgggccgag 360
tatccacaga atagacgcaa ggctctcctt tgataaagat gcgatggtgg ccagagccag 420
gcggntcatc gagctctaca aggaagctgg gatcagcaag accgaattct tataaagctg 480
tcatcaacct ggggaaggna ttcaggctgg aaangagctc gaaggagcag cacggcatcc 540
actgcaacat gacttaatct tctcct 566

<210> 868
<211> 413
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (193)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (360)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (389)
<223> n equals a,t,g, or c

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ggcagggctg agccagcgac gccctccatt cactctccgc gcccgttctc cggctgtcct 120
cccgttccgc tgcccgccct gccaccatga cggaacaggc catctccttc gccaaagact 180
tcttggccgg agnatcgccg ccgccatctc caagacggcc gtggctccga tcgagcgggt 240
caagctgctg ctgcaggtcc agcacgccag caagcagatc gccgccgaca agcagtacaa 300
gggcatcgtg gactgcattg tccgcatccc aaggagcagg cgtgtgtcct tctggagggn 360
aactttgcaa cgtcatcgct acttcccant caagcctcaa ttcgcttcaa gat 413

<210> 869
<211> 600
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (143)
<223> n equals a,t,g, or c

<221> misc feature
<222> (284)
<223> n equals a,t,g, or c

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<222> (294)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (298)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (349)
<223> n equals a,t,g, or c

<400> 866
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tggaacagcc tgagcttagc tcncgccggg gcttcaccaa gacctacact gttggctgta 120
aggaatgcac agtgtttccc tgtttatcca tcccctgtca aactgcagag tggcactcat 180
tgcttgtgga cggaccagct cctccaaggc tctgaaaagg gcttccagtt cccgtnaacc 240
ttgnctggnc tgacctcggg aagcnagggg ctgtgacacc tggnagtgcc ctgnggtncc 300
cagaatagcc tggaatcctg tcccgaagtt ggtaagttgg aagcctttna cat 353

<210> 867
<211> 566
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (307)
<223> n equals a,t,g, or c

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<222> (425)
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<222> (499)
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<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (31)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (41)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (42)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (45)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (52)
<223> n equals a,t,g, or c

<220>
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<222> (83)
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<222> (244)
<223> n equals a,t,g, or c

<220>
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<222> (249)
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<222> (265)
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<220>

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<222> (435)
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<222> (444)
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<222> (462)
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<221> misc feature
<222> (465)
<223> n equals a,t,g, or c

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<222> (469)
<223> n equals a,t,g, or c

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<222> (480)
<223> n equals a,t,g, or c

<220>
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<222> (490)
<223> n equals a,t,g, or c

<400> 865
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ttcagaagat cctggcaact ggtgccaatg ttattctaac cactggtgga attgatgata 120
tgtgtctgaa gtattttgtg gaggctggtg ctatggcagt tagaagagtt ttaaaaaggg 180
accttaaacg cattgccaaa gcttctggag caactattct gtcaaccctg gccaatttgg 240
aaggtgaaga aacttttgaa gctgcaatgt tgggacaggc agaagaagtt gtacaggaga 300
gattttgtga tgatgagctg atcttaatcn aaatacctag ggncgacggt ttnatcggtt 360
tttttcgggg ggcaaaattt tcccggtntt ngggnggggg cctttnaaag gnccttttttg 420
ggagngnttt tgggnaaatt gggnccccgg gggttttaaa gnccntctnt cccaaaattn 480
ccccagggtn ggaccttttt 499

<210> 866
<211> 353
<212> DNA
<213> Homo sapiens

<220>
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<222> (330)
<223> n equals a,t,g, or c

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<222> (343)
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<223> n equals a,t,g, or c

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<222> (395)
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<222> (406)
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<220>
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<220>
<221> misc feature
<222> (425)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (427)
<223> n equals a,t,g, or c

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aagtatgtgg cccccaggga gcttgggtct ccgcatgggg tgggaggtgg cttgttctaa 120
ggagcttgcg agaaggatta ggggaagcag atagccaaga aaggataaag tgagggtctg 180
ggatggggaa taatgggtcc ttaatactcc ttgacccctc cctttccacc ctcctgcgct 240
cagtctccct agcctatgag gcaagctaga ttagggaaaa aaagtgcaca ggaaggcaat 300
ggggattggg ctaagacgta acacagggat cagaaaacgg gtggaaaaca cacatttcta 360
ncaagtcttt aacccggttc ctccccttct taggaaagcg cagagcttaa gangggantt 420
cacagagagc cagnngcagg a 441

<210> 864
<211> 355
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (297)
<223> n equals a,t,g, or c

<220>
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<222> (322)
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<220>
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<222> (325)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (347)
<223> n equals a,t,g, or c

<220>
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<222> (349)
<223> n equals a,t,g, or c

<400> 864
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tccgaaccca gacacaagtc ttcactcctt cctgcgagcc ctgaggaagc cttctttccc 120
cagacatggc caacaagggt ccttcctatg gcatgagccg cgaagtgcag tccaaaatcg 180
agaagaagta tgacgaggag ctgggaggag cggctggtgg agtgggtcca tagtggcagt 240
gtgggccctg atgtggggcc ggcccagacc gtggggcgct tggggctttc caggttntgg 300
cttgaagatt ggcgttgatt tntgnagcaa gctgggttgg aacagcntnt taccc 355

<210> 865
<211> 499
<212> DNA
<213> Homo sapiens

<222> (554)
<223> n equals a,t,g, or c

<220>
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<400> 862
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naagtctccc agaagacagt gattatcaag gaagaggaag aagatactgc agagaagcca 120
gggaaggaag aggatgtcgt gactccaaaa ccagncaaga gaaagagaga ccaggcagag 180
gaggagccca acagaatacc aagccgcanc ctccgacgga ccaaacttaa ccaagaatca 240
acagccccca aagtgctctt cacaggagtg gtggatgctc gggganancg ggctgtgctg 300
gcatgggggg aaatctggct ggttcacggt caaagcttcc cacnggttca tggatcgcat 360
ccgccggaca ttcaattcct gtgtggccct ggggcggggn attccccatt ctgttccngg 420
gatgggtggc atcattcccg tcaagctggt tttcttctta cccccgatga atatgtggtg 480
aacgaccngg cnccaanaga agaatttggc tttactttca agacgcattg agcagggtcc 540
gganngaagg tgcntanaag ggtatgaatt tatgtgaacc tggatccacc acacca 596

<210> 863
<211> 441
<212> DNA
<213> Homo sapiens

<220>
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<222> (361)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (413)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (418)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (434)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (435)
<223> n equals a,t,g, or c

<400> 863

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<222> (288)
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<220>
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<222> (344)
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taggtagttt gttgggccgg gttctgaggc cttgcttctc tttacttttc cactctaggc 120
cacgatgccg cagtaccaga cctgggagga gttcagccgc gctgccgaga agctttacct 180
cgctgaccct atgaaggcac gtgtggttct caaatatagg cattctgatg ggaacttgtg 240
tgttaaagta acagatgatt tagtttgttt ggtgtataaa acagaccaag ctcaagatgt 300
aaagaagatt gagaaattcc acagtcaact aatgcgactt attgtagncc aaggagcccn 360
caatttacca tgggaactga gtgaatggtt tnaatgagac ttntcgggta cttagggagt 420
aaaancttt 429

<210> 862
<211> 596
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (10)
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<220>
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<222> (155)
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<220>
<221> misc feature
<222> (209)
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<220>

<220>
<221> misc feature
<222> (379)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (401)
<223> n equals a,t,g, or c

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tagattcaca gggacacatt gtccttactg acttcggact ctgcaaggag aacattgaac 120
acaacagcac aacatccacc ttctgtggca cgccggagta tctcgcacct gaggtgcttc 180
ataagcagcc ttatgacagg actgtggact ggtggtgcct gggagctttc ttgtatgaga 240
tgctgtatgg cctgccgcct ttttatagcc gaaacacagc tgaaatgtac gacaacattc 300
tgaacaagcc tctccagctg aaaccaaata ttaccaattc cgcaagacac ctcctggaag 360
ggctcctgna gaaggacang acaaagcggc tcgggggcaa nggtgacttc atggagatta 420
aga 423

<210> 861
<211> 429
<212> DNA
<213> Homo sapiens

<220>
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<222> (348)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (360)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (392)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (403)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (425)
<223> n equals a,t,g, or c

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20 25 30

Gly Gly Leu Ala Arg Pro Gly Leu Ala Cys Gln Gly Ala Gly Gly Gly
35 40 45

Gly Ser Ser Thr Met Ser Leu Gln Tyr Gly Ala Glu Glu Thr Pro Leu
50 55 60

Ala Gly Ser Tyr Gly Ala Ala Asp Ser Phe Pro Lys Asp Phe Gly Tyr
65 70 75 80

Gly Val Glu Glu Glu Glu Glu Glu Ala Ala Ala Ala Gly Gly Gly Val
85 90 95

Gly Ala Gly Ala Gly Gly Gly Cys Gly Pro Gly Gly Ala Asp Ser Ser
100 105 110

Lys Pro Arg Ile Leu Leu Met Gly Thr Pro Ala Gln Xaa Lys Phe Leu
115 120 125

His Pro Glu Ser Gly Val Xaa Ile Lys Met Phe Asn Gln Arg Asp Pro
130 135 140

Leu Phe Leu Gly Asn Tyr Gln Thr Arg Phe
145 150

<210> 1600
<211> 108
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (24)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (27)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (68)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1600
Gly Cys Ser Phe Lys Trp Gly Leu Thr Gly Asn Val Thr Leu Ser Arg

<210> 1598
<211> 103
<212> PRT
<213> Homo sapiens

<400> 1598
Gln Pro Glu Val Pro Asp Arg Arg Cys Val Ile His Arg Arg Arg Arg
1 5 10 15

Tyr Gly Ser Ser Thr Glu Ala His Ala Lys Leu Ser Thr Met Ala Ser
20 25 30

Ser Thr Val Pro Val Ser Ala Ala Gly Ser Ala Asn Glu Thr Pro Glu
35 40 45

Ile Pro Asp Asn Val Gly Asp Trp Leu Arg Gly Val Tyr Arg Phe Ala
50 55 60

Thr Asp Arg Asn Asp Phe Arg Arg Asn Leu Ile Leu Asn Leu Gly Leu
65 70 75 80

Phe Ala Ala Gly Val Trp Leu Ala Arg Asn Leu Ser Asp Ile Asp Leu
85 90 95

Met Ala Pro Gln Pro Gly Val
100

<210> 1599
<211> 154
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (125)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (135)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1599
Arg Arg Thr Tyr Tyr Gly Lys Thr Trp Asn Cys Arg Ala Arg Tyr Leu
1 5 10 15

Val Ala Tyr Tyr Phe Glu Lys Asp Val Lys Gly Glu Ser Leu Phe His
275 280 285

Ser Lys Lys Met Asp Leu Thr Val Asn Gly Glu Gln Leu Asp Leu Asp
290 295 300

Pro Gly Gln Thr Leu Ile Tyr Tyr Val Asp Glu Lys Ala Pro Glu Phe
305 310 315 320

Ser Met Gln Gly Leu Lys Ala Gly Val Ile Ala Val Ile Val Val Val
325 330 335

Val Ile Ala Val Val Ala Gly Ile Val Val Leu Val Ile Ser Arg Lys
340 345 350

Lys Arg Met Ala Lys Tyr Glu Lys Ala Glu Ile Lys Glu Met Gly Glu
355 360 365

Met His Arg Glu Leu Asn Ala
370 375

<210> 1597
<211> 83
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (71)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1597
Ala Leu Gly Pro Gln Ala Ser Pro Leu Gln Ser Leu Ala Ala Ser Leu
1 5 10 15

Asp Ala Glu Pro Ser Ser Ala Ala Val Pro Asp Gly Phe Pro Ala Gly
20 25 30

Pro Thr Val Ser Pro Arg Arg Leu Ala Arg Pro Pro Gly Leu Glu Glu
35 40 45

Ala Leu Ser Ala Leu Gly Leu Gln Gly Glu Arg Asp Thr Pro Gly Thr
50 55 60

Ser Ser Pro Lys Ser Trp Xaa Gly Ser Arg Glu Arg Gln Lys His Ser
65 70 75 80

Val Gly Glu

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Ser Phe Gly Glu Arg Ala Pro Ser Thr Arg Ser Gly Asp Pro Leu Val
1               5                   10                  15

Ala Val Leu Pro Thr Arg Thr Arg Val Pro Gln Ala Ser Arg Cys Pro
            20                  25                  30

Ala Gly Ser Ser Cys Pro Thr Pro Gly Ala Arg Pro Pro Ala Ser Pro
        35                  40                  45

Gly Pro Leu Pro Arg Pro Ser Ser Arg Arg Ala Arg Ser Met Ala Pro
    50                  55                  60

Pro Gln Val Leu Ala Phe Gly Leu Leu Leu Ala Ala Ala Thr Ala Thr
65                  70                  75                  80

Phe Ala Ala Ala Gln Glu Glu Cys Val Cys Glu Asn Tyr Lys Leu Ala
                85                  90                  95

Val Asn Cys Phe Val Asn Asn Asn Arg Gln Cys Gln Cys Thr Ser Val
            100                 105                 110

Gly Ala Gln Asn Thr Val Ile Cys Ser Lys Leu Ala Ala Lys Cys Leu
        115                 120                 125

Val Met Lys Ala Glu Met Asn Gly Ser Lys Leu Gly Arg Arg Ala Lys
    130                 135                 140

Pro Glu Gly Ala Leu Gln Asn Asn Asp Gly Leu Tyr Asp Pro Asp Cys
145                 150                 155                 160

Asp Glu Ser Gly Leu Phe Lys Ala Lys Gln Cys Asn Gly Thr Ser Xaa
                165                 170                 175

Cys Trp Cys Val Asn Thr Ala Gly Val Arg Arg Thr Asp Lys Asp Thr
            180                 185                 190

Glu Ile Thr Cys Ser Glu Arg Val Arg Thr Tyr Trp Ile Ile Ile Glu
        195                 200                 205

Leu Lys His Lys Ala Arg Glu Lys Pro Tyr Asp Ser Lys Ser Leu Arg
    210                 215                 220

Thr Ala Leu Gln Lys Glu Ile Thr Thr Arg Tyr Gln Leu Asp Pro Lys
225                 230                 235                 240

Phe Ile Thr Ser Ile Leu Tyr Glu Asn Asn Val Ile Thr Ile Asp Leu
                245                 250                 255

Val Gln Asn Ser Ser Gln Lys Thr Gln Asn Asp Val Asp Ile Ala Asp
            260                 265                 270
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        260                 265                 270

Glu Ala Phe Lys Asn Tyr Asp Glu Ser Gly Ser Pro Arg Arg Thr Thr
        275                 280                 285

Cys Leu Lys Tyr Leu Val Leu Ala Asn Met Leu Met Lys Ser Gly Ile
    290                 295                 300

Asn Pro Phe Asp Ser Gln Glu Ala Lys Pro Tyr Lys Asn Asp Pro Glu
305                 310                 315                 320

Ile Leu Ala Met Thr Asn Leu Val Ser Ala Tyr Gln Asn Asn Asp Ile
                325                 330                 335

Thr Glu Phe Glu Lys Ile Leu Lys Thr Asn His Ser Asn Ile Met Asp
            340                 345                 350

Asp Pro Phe Ile Arg Glu His Ile Glu Glu Leu Leu Arg Asn Ile Arg
        355                 360                 365

Thr Gln Val Leu Ile Lys Leu Ile Lys Pro Tyr Thr Arg Ile His Ile
    370                 375                 380

Pro Phe Ile Ser Lys Glu Leu Asn Ile Asp Val Ala Asp Val Glu Ser
385                 390                 395                 400

Leu Leu Val Gln Cys Ile Leu Asp Asn Thr Ile His Gly Arg Ile Asp
                405                 410                 415

Gln Val Asn Gln Leu Leu Glu Leu Asp His Gln Lys Arg Gly Gly Ala
            420                 425                 430

Arg Tyr Thr Ala Leu Asp Lys Trp Thr Asn Gln Leu Asn Ser Leu Asn
        435                 440                 445

Gln Ala Val Val Ser Lys Leu Ala
    450                 455
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<210> 1596
<211> 375
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (176)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1596

<400> 1595

Phe Gly Thr Ser Gln Phe Leu Leu Pro Leu Pro Ala Lys Met Ser Asp
1 5 10 15

Met Glu Asp Asp Phe Met Cys Asp Asp Glu Glu Asp Tyr Asp Leu Glu
20 25 30

Tyr Ser Glu Asp Ser Asn Ser Glu Pro Asn Val Asp Leu Glu Asn Gln
35 40 45

Tyr Tyr Asn Ser Lys Ala Leu Lys Glu Asp Asp Pro Lys Ala Ala Leu
50 55 60

Ser Ser Phe Gln Lys Val Leu Glu Leu Glu Gly Glu Lys Gly Glu Trp
65 70 75 80

Gly Phe Lys Ala Leu Lys Gln Met Ile Lys Ile Asn Phe Lys Leu Thr
85 90 95

Asn Phe Pro Glu Met Met Asn Arg Tyr Lys Gln Leu Leu Thr Tyr Ile
100 105 110

Arg Ser Ala Val Thr Arg Asn Tyr Ser Glu Lys Ser Ile Asn Ser Ile
115 120 125

Leu Asp Tyr Ile Ser Thr Ser Lys Gln Met Asp Leu Leu Gln Glu Phe
130 135 140

Tyr Glu Thr Thr Leu Glu Ala Leu Lys Asp Ala Lys Asn Asp Arg Leu
145 150 155 160

Trp Phe Lys Thr Asn Thr Lys Leu Gly Lys Leu Tyr Leu Glu Arg Glu
165 170 175

Glu Tyr Gly Lys Leu Gln Lys Ile Leu Arg Gln Leu His Gln Ser Cys
180 185 190

Gln Thr Asp Asp Gly Glu Asp Asp Leu Lys Lys Gly Thr Gln Leu Leu
195 200 205

Glu Ile Tyr Ala Leu Glu Ile Gln Met Tyr Thr Ala Gln Lys Asn Asn
210 215 220

Lys Lys Leu Lys Ala Leu Tyr Glu Gln Ser Leu His Ile Lys Ser Ala
225 230 235 240

Ile Pro His Pro Leu Ile Met Gly Val Ile Arg Glu Cys Gly Gly Lys
245 250 255

Met His Leu Arg Glu Gly Glu Phe Glu Lys Ala His Thr Asp Phe Phe

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Trp Ser Met Asp Glu Asn Leu Met His Ile Ser Tyr Glu Ala Gly Ile
    210                 215                 220

Leu Glu Asn Pro Lys Asn Gln Ala Pro Pro Gly Leu Tyr Thr Lys Thr
225                 230                 235                 240

Gln Asp Pro Ala Lys Ala Pro Asn Thr Pro Asp Ile Leu Glu Ile Glu
                245                 250                 255

Phe Lys Lys Gly Val Pro Val Lys Val Thr Asn Val Lys Asp Gly Thr
            260                 265                 270

Thr His Gln Thr Ser Leu Glu Leu Phe Met Tyr Leu Asn Glu Val Ala
        275                 280                 285

Gly Lys His Gly Val Gly Arg Ile Asp Ile Val Glu Asn Arg Phe Ile
    290                 295                 300

Gly Met Lys Ser Arg Gly Ile Tyr Glu Thr Pro Ala Gly Thr Ile Leu
305                 310                 315                 320

Tyr His Ala His Leu Asp Ile Glu Ala Phe Thr Met Asp Arg Glu Val
                325                 330                 335

Arg Lys Ile Lys Gln Gly Leu Gly Leu Lys Phe Ala Glu Leu Val Tyr
            340                 345                 350

Thr Gly Phe Trp His Ser Pro Glu Cys Glu Phe Val Arg His Cys Ile
        355                 360                 365

Ala Lys Ser Gln Glu Arg Val Glu Gly Lys Val Gln Val Ser Val Leu
    370                 375                 380

Lys Gly Gln Val Tyr Ile Leu Gly Arg Glu Ser Pro Leu Ser Leu Tyr
385                 390                 395                 400

Asn Glu Glu Leu Val Ser Met Asn Val Gln Gly Asp Tyr Glu Pro Thr
                405                 410                 415

Asp Ala Thr Gly Phe Ile Asn Ile Asn Ser Leu Arg Leu Lys Glu Tyr
            420                 425                 430

His Arg Leu Gln Ser Lys Val Thr Ala Lys
        435                 440


<210> 1595
<211> 456
<212> PRT
<213> Homo sapiens
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<210> 1594
<211> 442
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (22)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1594
Leu Glu Gln Glu Leu Gly Asp Gly Trp Gly His Ser Asp Leu His Lys
1 5 10 15

Ala Leu Leu Cys Arg Xaa Pro Pro Leu Pro Glu Pro Asp Ala Met Ser
20 25 30

Ser Lys Gly Ser Val Val Leu Ala Tyr Ser Gly Gly Leu Asp Thr Ser
35 40 45

Cys Ile Leu Val Trp Leu Lys Glu Gln Gly Tyr Asp Val Ile Ala Tyr
50 55 60

Leu Ala Asn Ile Gly Gln Lys Glu Asp Phe Glu Glu Ala Arg Lys Lys
65 70 75 80

Ala Leu Lys Leu Gly Ala Lys Lys Val Phe Ile Glu Asp Val Ser Arg
85 90 95

Glu Phe Val Glu Glu Phe Ile Trp Pro Ala Ile Gln Ser Ser Ala Leu
100 105 110

Tyr Glu Asp Arg Tyr Leu Leu Gly Thr Ser Leu Ala Arg Pro Cys Ile
115 120 125

Ala Arg Lys Gln Val Glu Ile Ala Gln Arg Glu Gly Ala Lys Tyr Val
130 135 140

Ser His Gly Ala Thr Gly Lys Gly Asn Asp Gln Val Arg Phe Glu Leu
145 150 155 160

Ser Cys Tyr Ser Leu Ala Pro Gln Ile Lys Val Ile Ala Pro Trp Arg
165 170 175

Met Pro Glu Phe Tyr Asn Arg Phe Lys Gly Arg Asn Asp Leu Met Glu
180 185 190

Tyr Ala Lys Gln His Gly Ile Pro Ile Pro Val Thr Pro Lys Asn Pro
195 200 205

<210> 1592
<211> 66
<212> PRT
<213> Homo sapiens

<400> 1592
Val Cys Cys Cys Lys Lys Ser Pro Met Cys Ile Thr Asn Ser Glu Tyr
1 5 10 15

Phe Leu Arg Leu Lys Lys Thr Gly Val Thr Ser Arg Tyr Cys Cys Val
20 25 30

Met Val Thr Leu Thr Lys Arg His Gln Pro Leu Arg Val Leu Tyr Cys
35 40 45

Lys Ala Gln Ile Thr Phe Val Cys Tyr Thr Leu Ile Gly Glu Leu Lys
50 55 60

Val Ile
65

<210> 1593
<211> 91
<212> PRT
<213> Homo sapiens

<400> 1593
Glu Ser Leu Trp Ala Phe Cys Leu Ser Leu Leu Glu Arg Leu Ala Cys
1 5 10 15

Cys Ser Leu Leu Tyr Pro Glu Val Cys Leu Trp Asp Phe Ser Pro Val
20 25 30

Ala Val Glu Thr Arg Arg Pro Thr Leu Phe Glu Thr Gln Met Leu Leu
35 40 45

Ser Leu Ala Ser Pro Ser Leu Ser Ser Pro Asn Glu Pro Thr Phe Cys
50 55 60

Thr Ser Thr Arg Met Pro Gly Arg Leu Gly Pro Gln Arg Leu Leu Phe
65 70 75 80

Gln Asn Leu Trp Lys Pro Arg Leu Asn Val Pro
85 90

100 105 110

Asp Gln His Phe Asp Gln Asn Leu Asn Phe Met Tyr Ile Glu Val Asp
115 120 125

Lys Val Thr Glu Arg Glu Lys Val Thr Val Met Ser Thr Ile Asn Pro
130 135 140

Thr Lys Asp Leu Leu Ala Asp Leu Ile Gly Cys Gln Arg Leu Pro Glu
145 150 155 160

Asp Gln Arg Lys Lys Val His Gln Leu Lys Asp Leu Leu Asp Gln Ile
165 170 175

Leu Met Leu Asp Pro Ala Lys Arg Ile Ser Ile Asn Gln Ala Leu Gln
180 185 190

His Ala Phe Ile Gln Glu Lys Ile
195 200

<210> 1591
<211> 115
<212> PRT
<213> Homo sapiens

<400> 1591
Val Thr Leu Ala Arg Ser Leu Gln Ser Arg Pro Val Ala Met Ser Ala
1 5 10 15

Asp Val Thr Ser Ser Leu Ala Ala Phe Gly Glu Gly Trp Gly Val Arg
20 25 30

Glu Leu Ser Asp His Ser Ser Pro Arg Pro Leu Leu Gly Leu Ala Arg
35 40 45

Arg Ala Pro Arg Val Asp Pro Pro Ala Thr Gly Val Phe Ser Pro Leu
50 55 60

Leu Pro Pro Ser Gly Leu Met Arg Gln Arg Gly Gly Cys Gly Ala Cys
65 70 75 80

Leu Gly Arg Thr Glu Leu Ser Leu Gly Lys Thr Tyr Phe Val Asn Lys
85 90 95

Trp Asn Thr Trp Leu Tyr Ser Lys Lys Lys Lys Lys Lys Lys Lys Lys
100 105 110

Lys Ser Arg
115

Ser Cys Asp Glu Ala His Lys Met Lys Phe Ser Asp Leu Phe Ser Leu
130 135 140

Ala Glu Glu Tyr Glu Asp Ser Ser Thr Lys Pro Pro Lys Ser Arg Arg
145 150 155 160

Lys Ala Ala Leu Ser Ser Pro Arg Ser Arg Lys Asn Ala Thr Gln Pro
165 170 175

Pro Asn Ala Glu Glu Glu Ser Gly Ser Ser Ser Ala Ser Glu Glu Glu
180 185 190

Asp Thr Lys Pro Lys Pro Thr Lys Arg Lys Arg Lys Gly Ser Ser Ala
195 200 205

Val Gly Ser Asp Ser Asp
210

<210> 1590
<211> 200
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (27)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1590
Lys Met His Ile Leu His Ala Asp Ile Lys Pro Asp Asn Ile Leu Val
1 5 10 15

Asn Glu Ser Lys Thr Ile Leu Lys Leu Cys Xaa Phe Gly Ser Ala Ser
20 25 30

His Val Ala Asp Asn Asp Ile Thr Pro Tyr Leu Val Ser Arg Phe Tyr
35 40 45

Arg Ala Pro Glu Ile Ile Ile Gly Lys Ser Tyr Asp Tyr Gly Ile Asp
50 55 60

Met Trp Ser Val Gly Cys Thr Leu Tyr Glu Leu Tyr Thr Gly Lys Ile
65 70 75 80

Leu Phe Pro Gly Lys Thr Asn Asn His Met Leu Lys Leu Ala Met Asp
85 90 95

Leu Lys Gly Lys Met Pro Asn Lys Met Ile Arg Lys Gly Val Phe Lys

Lys Asp Ile Leu Lys Glu Ser Asn Ile Gln Phe Asn
405 410

<210> 1588
<211> 44
<212> PRT
<213> Homo sapiens

<400> 1588
Ala Ile His Ser Leu Gln Gln Phe Asp Lys Ile Tyr Phe Cys Glu Gln
1 5 10 15

Lys Leu Arg His Leu His Phe Leu Pro Met Trp Ser Leu Gln Thr Trp
20 25 30

Glu Thr Ile His Glu Tyr Leu Tyr Cys Met Val Ile
35 40

<210> 1589
<211> 214
<212> PRT
<213> Homo sapiens

<400> 1589
Val Gly Glu Thr Gln His Ala Leu Arg Pro Leu Cys Lys Gln His Pro
1 5 10 15

Val Pro Pro Ser Ser Pro Arg Pro Ser Glu Glu Met Val Lys Met Val
20 25 30

Leu Ser Arg Pro Cys His Pro Asp Asp Gln Phe Thr Thr Ser Ile Leu
35 40 45

Arg His Trp Cys Met Lys His Asp Glu Leu Leu Ala Glu His Ile Lys
50 55 60

Ser Leu Leu Ile Lys Asn Asn Ser Leu Pro Arg Lys Arg Gln Ser Leu
65 70 75 80

Arg Ser Ser Ser Ser Lys Leu Ala Gln Leu Thr Leu Glu Gln Ile Leu
85 90 95

Glu His Leu Asp Asn Leu Arg Leu Asn Leu Thr Asn Thr Lys Gln Asn
100 105 110

Phe Phe Ser Gln Thr Pro Ile Leu Gln Ala Leu Gln His Val Gln Ala
115 120 125

Thr Val Asn Val Arg Thr Thr Lys Pro Pro Lys Arg Arg Pro Leu Lys
    130   135   140

Ser Leu Glu Ala Thr Leu Gly Arg Leu Arg Arg Ala Thr Glu Tyr Ala
145   150   155   160

Pro Lys Lys Arg Ile Glu Pro Leu Ser Pro Glu Leu Val Ala Ala Ala
                165   170   175

Ser Ala Val Ala Asp Ser Leu Pro Phe Asp Lys Gln Thr Thr Lys Ser
            180   185   190

Glu Leu Leu Ser Gln Leu Gln Gln His Glu Glu Glu Ser Arg Ala Gln
        195   200   205

Arg Asp Ala Lys Arg Pro Lys Ile Ser Phe Ser Asn Ile Ile Ser Asp
    210   215   220

Met Lys Val Ala Arg Ser Ala Thr Ala Arg Val Arg Ser Arg Pro Glu
225   230   235   240

Leu Arg Ile Gln Phe Asp Glu Gly Tyr Asp Asn Tyr Pro Gly Gln Glu
                245   250   255

Lys Thr Asp Asp Leu Lys Lys Arg Lys Asn Ile Phe Thr Gly Lys Arg
            260   265   270

Leu Asn Ile Phe Asp Met Met Ala Val Thr Lys Glu Ala Pro Glu Thr
        275   280   285

Asp Thr Ser Pro Ser Leu Trp Xaa Val Glu Phe Ala Lys Gln Leu Ala
    290   295   300

Thr Val Asn Glu Gln Pro Leu Gln Asn Gly Phe Glu Glu Leu Ile Gln
305   310   315   320

Trp Thr Lys Glu Gly Lys Leu Trp Glu Phe Pro Ile Asn Asn Glu Ala
                325   330   335

Gly Phe Asp Asp Asp Gly Ser Glu Phe His Glu His Ile Phe Leu Glu
            340   345   350

Lys His Leu Glu Ser Phe Pro Lys Gln Gly Pro Ile Arg His Phe Met
        355   360   365

Glu Leu Val Thr Cys Gly Leu Ser Lys Asn Pro Tyr Leu Ser Val Lys
    370   375   380

Gln Lys Val Glu His Ile Glu Trp Phe Arg Asn Tyr Phe Asn Glu Lys
385   390   395   400

1 5 10 15

Val Ile Gln Gly Pro Phe Leu Leu Asp Val Lys Glu Ser Trp Val Lys
20 25 30

Cys Gly Cys Asn Leu Asn Gln Leu Val Leu Val Ile Cys Phe Cys Pro
35 40 45

Leu Cys Phe Leu Leu Ser Asn Ala Lys Cys Val Phe Cys Ser His Glu
50 55 60

Leu Lys His Lys Lys Met His Glu Thr Leu
65 70

<210> 1587
<211> 412
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (296)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1587
Ser Gly Thr His His Phe Ser Cys Val Leu Gly Ser Phe Arg Val Ser
1 5 10 15

Ala Met Phe Pro Arg Val Ser Thr Phe Leu Pro Leu Arg Pro Leu Ser
20 25 30

Arg His Pro Leu Ser Ser Gly Ser Pro Glu Thr Ser Ala Ala Ala Ile
35 40 45

Met Leu Leu Thr Val Arg His Gly Thr Val Arg Tyr Arg Ser Ser Ala
50 55 60

Leu Leu Ala Arg Thr Lys Asn Asn Ile Gln Arg Tyr Phe Gly Thr Asn
65 70 75 80

Ser Val Ile Cys Ser Lys Lys Asp Lys Gln Ser Val Arg Thr Glu Glu
85 90 95

Thr Ser Lys Glu Thr Ser Glu Ser Gln Asp Ser Glu Lys Glu Asn Thr
100 105 110

Lys Lys Asp Leu Leu Gly Ile Ile Lys Gly Met Lys Val Glu Leu Ser
115 120 125

Ser Ser His Ser Asp Gly Ala Gln Tyr Val Lys Arg Tyr Lys Gly His
35 40 45

Arg Asn Asn Ala Thr Val Lys Gly Val Asn Phe Tyr Gly Pro Lys Ser
50 55 60

Glu Phe Val Val Ser Gly Ser Asp Cys Gly His Ile Phe Leu Trp Glu
65 70 75 80

Lys Ser Ser Cys Gln Ile Ile Gln Phe Met Glu Gly Asp Lys Gly Gly
85 90 95

Val Val Asn Cys Leu Glu Pro His Pro His Leu Pro Val Leu Ala Thr
100 105 110

Ser Gly Leu Asp His Asp Val Lys Ile Trp Ala Pro Thr Ala Glu Ala
115 120 125

Ser Thr Glu Leu Thr Gly Leu Lys Asp Val Ile Lys Lys Asn Lys Arg
130 135 140

Glu Arg Asp Glu Asp Ser Leu His Gln Thr Asp Leu Phe Asp Ser His
145 150 155 160

Met Leu Trp Phe Leu Met His His Leu Arg Gln Arg Arg His His Arg
165 170 175

Arg Trp Arg Glu Pro Gly Val Gly Ala Thr Asp Ala Asp Ser Asp Glu
180 185 190

Ser Pro Ser Ser Ser Asp Thr Ser Asp Glu Glu Glu Gly Pro Asp Arg
195 200 205

Val Gln Cys Met Pro Ser
210

<210> 1586
<211> 74
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (7)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1586
Gln Ile Thr Pro Asn Lys Xaa Gly His Arg Glu Ser Ala Arg Arg Pro

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Arg Leu Arg Gln Ala Val Glu Leu Leu Gly Lys Ala Ser Arg Leu Leu
            180                 185                 190

Val Arg Gly Arg Arg Phe Asp Glu Ala Ala Leu Ser Ile Gln Lys Glu
        195                 200                 205

Lys Asn Ile Tyr Lys Glu Ile Glu Asn Tyr Pro Thr Cys Tyr Lys Lys
    210                 215                 220

Thr Ile Ala Gln Val Leu Val His Leu His Arg Asn Asp Tyr Val Ala
225                 230                 235                 240

Ala Glu Arg Cys Val Arg Glu Ser Tyr Ser Ile Pro Gly Phe Asn Gly
                245                 250                 255

Ser Glu Asp Cys Ala Ala Leu Gly Thr Ala Ser
            260                 265



<210> 1585
<211> 214
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (1)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (2)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (3)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (12)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1585
Xaa Xaa Xaa Gln Thr Ser Pro Val Leu Cys Asn Xaa Pro Arg Arg His
  1               5                  10                  15

Arg Ala Pro Trp Pro Ser Tyr Asn Asp Glu Asp Ile Tyr Leu Phe Asn
            20                  25                  30
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Glu Leu Lys His Gln Lys Arg Cys Lys Glu Ala Val Thr Thr Ile Ala
    530   535   540

Ala Tyr Trp His Gly Thr Gln Xaa Xaa Xaa Lys Asn Gln Glu Ile Leu
545   550   555   560

Gln Ser Gln Cys Trp Lys Arg Lys Ser
                565

<210> 1584
<211> 267
<212> PRT
<213> Homo sapiens

<400> 1584
Arg Val Asp Pro Arg Val Arg Ile Leu Gly Ala Gly Glu Glu Ala Gly
1   5   10   15

Ser Pro Ser Leu His Val Arg Asp Leu Thr Val Glu Met Ala Ala Gln
            20   25   30

Lys Ile Asn Glu Gly Leu Glu His Leu Ala Lys Ala Glu Lys Tyr Leu
        35   40   45

Lys Thr Gly Phe Leu Lys Trp Lys Pro Asp Tyr Asp Ser Ala Ala Ser
    50   55   60

Glu Tyr Gly Lys Ala Ala Val Ala Phe Lys Asn Ala Lys Gln Phe Glu
65   70   75   80

Gln Ala Lys Asp Ala Cys Leu Arg Glu Ala Val Ala His Glu Asn Asn
                85   90   95

Arg Ala Leu Phe His Ala Ala Lys Ala Tyr Glu Gln Ala Gly Met Met
            100   105   110

Leu Lys Glu Met Gln Lys Leu Pro Glu Ala Val Gln Leu Ile Glu Lys
        115   120   125

Ala Ser Met Met Tyr Leu Glu Asn Gly Thr Pro Asp Thr Ala Ala Met
    130   135   140

Ala Leu Glu Arg Ala Gly Lys Leu Ile Glu Asn Val Asp Pro Glu Lys
145   150   155   160

Ala Val Gln Leu Tyr Gln Gln Thr Ala Asn Val Phe Glu Asn Glu Glu
                165   170   175

Leu Asn Asp Thr Ser Leu Pro His Ser Cys Phe Arg Ile Gln His Tyr
260 265 270

Ala Gly Lys Val Leu Tyr Gln Val Glu Gly Phe Val Asp Lys Asn Asn
275 280 285

Asp Leu Xaa Tyr Arg Asp Leu Ser Gln Ala Met Trp Lys Ala Ser His
290 295 300

Ala Leu Ile Lys Ser Leu Phe Pro Glu Gly Asn Pro Ala Lys Ile Asn
305 310 315 320

Leu Lys Arg Pro Pro Thr Ala Gly Ser Gln Phe Lys Ala Ser Val Ala
325 330 335

Thr Leu Met Lys Asn Leu Gln Thr Xaa Xaa Pro Asn Tyr Ile Arg Cys
340 345 350

Ile Lys Pro Asn Asp Lys Lys Ala Ala His Ile Phe Asn Glu Ala Leu
355 360 365

Val Cys His Gln Ile Arg Tyr Leu Gly Leu Leu Glu Asn Val Arg Val
370 375 380

Arg Arg Ala Gly Tyr Ala Phe Arg Gln Ala Tyr Glu Pro Cys Leu Glu
385 390 395 400

Arg Tyr Lys Met Leu Cys Lys Gln Thr Trp Pro His Trp Lys Gly Pro
405 410 415

Ala Arg Ser Gly Val Glu Val Leu Phe Asn Glu Leu Glu Ile Pro Val
420 425 430

Glu Glu Tyr Ser Phe Gly Arg Ser Lys Ile Phe Ile Arg Asn Pro Arg
435 440 445

Thr Leu Phe Lys Leu Glu Asp Leu Arg Lys Gln Arg Leu Glu Asp Leu
450 455 460

Ala Thr Leu Ile Gln Lys Ile Tyr Arg Gly Trp Lys Cys Arg Thr His
465 470 475 480

Phe Leu Leu Met Lys Lys Ser Gln Ile Val Ile Ala Ala Trp Tyr Arg
485 490 495

Arg Tyr Ala Gln Gln Lys Arg Tyr Gln Gln Thr Lys Ser Ser Ala Leu
500 505 510

Val Ile Gln Ser Tyr Ile Arg Gly Trp Lys Ala Arg Lys Ile Leu Arg
515 520 525

<222> (554)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1583
Gly Xaa Lys Ser Trp Cys Ser Thr Ala Val Ala Ala Ala Leu Glu Leu
1 5 10 15

Val Asp Pro Pro Gly Cys Arg Asn Ser Ala Arg Val Leu Ala Val Val
20 25 30

Ala Xaa Val Leu Lys Leu Gly Asn Ile Glu Phe Lys Pro Glu Ser Arg
35 40 45

Val Asn Gly Leu Asp Glu Ser Lys Ile Lys Asp Lys Asn Glu Leu Lys
50 55 60

Glu Ile Cys Glu Leu Thr Gly Ile Asp Gln Ser Val Leu Glu Arg Ala
65 70 75 80

Phe Ser Phe Arg Thr Val Glu Ala Lys Gln Glu Lys Val Ser Thr Thr
85 90 95

Leu Asn Val Ala Gln Ala Tyr Tyr Ala Arg Asp Ala Leu Ala Lys Asn
100 105 110

Leu Tyr Ser Arg Leu Phe Ser Trp Leu Val Asn Arg Ile Asn Glu Ser
115 120 125

Ile Lys Ala Gln Thr Lys Val Arg Lys Lys Val Met Gly Val Leu Asp
130 135 140

Ile Tyr Gly Phe Glu Ile Phe Glu Asp Asn Ser Phe Glu Gln Phe Ile
145 150 155 160

Ile Asn Tyr Cys Asn Glu Lys Leu Gln Gln Ile Phe Ile Glu Leu Thr
165 170 175

Leu Lys Glu Glu Gln Glu Glu Tyr Ile Arg Glu Xaa Ile Glu Trp Thr
180 185 190

His Ile Asp Tyr Phe Asn Asn Ala Ile Ile Cys Asp Leu Ile Glu Asn
195 200 205

Asn Thr Asn Gly Ile Leu Ala Met Leu Asp Glu Glu Cys Leu Arg Pro
210 215 220

Gly Thr Val Thr Asp Glu Thr Phe Leu Glu Lys Leu Asn Gln Val Cys
225 230 235 240

Ala Thr His Gln His Phe Glu Ser Arg Met Ser Lys Cys Ser Arg Phe
245 250 255

465 470 475

<210> 1583
<211> 569
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (2)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<222> (34)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<223> Xaa equals any of the naturally occurring L-amino acids

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<223> Xaa equals any of the naturally occurring L-amino acids

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<222> (346)
<223> Xaa equals any of the naturally occurring L-amino acids

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<222> (552)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<222> (553)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE

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        195                 200                 205

Asp His Phe Val Asp Arg Pro Tyr Pro Ser Ser Ser Pro Met His Pro
    210                 215                 220

Cys Asn Tyr Arg Thr Ala Gly Glu Asp Thr Gly Val Ile Tyr Pro Ser
225                 230                 235                 240

Val Glu Asp Ser Gln Glu Val Cys Thr Thr Ser Phe Ser Thr Ser Pro
                245                 250                 255

Pro Ser Gln Leu Met Val Pro Gly Lys Glu Gly Gly Val Pro Xaa Ala
            260                 265                 270

Pro Asn Gln Pro Val His Gly Thr Gln Ala Asp Gln Glu Arg Leu Ala
        275                 280                 285

Thr Cys Thr Pro Ser Asp Arg Thr His Cys Ala Ala Thr Pro Ser Ser
    290                 295                 300

Ser Glu Asp Thr Glu Thr Val Ser Asn Ser Ser Glu Gly Arg Ala Ser
305                 310                 315                 320

Pro His Asp Val Leu Glu Thr Ile Phe Val Arg Lys Val Gly Ala Phe
                325                 330                 335

Val Asn Lys Pro Ile Asn Gln Val Thr Leu Thr Ser Leu Asp Ile Pro
            340                 345                 350

Phe Ala Met Phe Ala Pro Lys Asn Leu Glu Leu Glu Asp Thr Asp Pro
        355                 360                 365

Met Val Asn Pro Pro Asp Ser Pro Glu Thr Glu Ser Pro Leu Gln Gly
    370                 375                 380

Ser Leu His Ser Asp Gly Ser Ser Gly Gly Ser Ser Gly Asn Thr His
385                 390                 395                 400

Asp Asp Phe Val Met Ile Asp Phe Lys Pro Ala Phe Ser Lys Asp Asp
                405                 410                 415

Ile Leu Pro Met Asp Leu Gly Thr Phe Tyr Arg Glu Phe Gln Asn Pro
            420                 425                 430

Pro Gln Leu Ser Ser Leu Ser Ile Asp Ile Gly Ala Gln Ser Met Ala
        435                 440                 445

Glu Asp Leu Asp Ser Leu Pro Glu Lys Leu Ala Val His Glu Lys Asn
    450                 455                 460

Val Arg Glu Phe Asp Ala Phe Val Glu Thr Leu Gln
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<222> (8)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (136)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (271)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1582
Thr Ile Ser Phe Pro Gly Arg Xaa Leu Asp Lys Phe Ile Lys Phe Phe
1 5 10 15

Ala Leu Lys Thr Val Gln Val Ile Val Gln Ala Arg Leu Gly Glu Lys
20 25 30

Ile Cys Thr Arg Ser Ser Ser Ser Pro Thr Gly Ser Asp Trp Phe Asn
35 40 45

Leu Ala Ile Lys Asp Ile Pro Glu Val Thr His Glu Ala Lys Lys Ala
50 55 60

Leu Ala Gly Gln Leu Pro Ala Val Gly Arg Ser Met Cys Val Glu Ile
65 70 75 80

Ser Leu Lys Thr Ser Glu Gly Asp Ser Met Glu Leu Glu Ile Trp Cys
85 90 95

Leu Glu Met Asn Glu Lys Cys Asp Lys Glu Ile Lys Val Ser Tyr Thr
100 105 110

Val Tyr Asn Arg Leu Ser Leu Leu Leu Lys Ser Leu Leu Ala Ile Thr
115 120 125

Arg Val Thr Pro Ala Tyr Arg Xaa Ser Arg Lys Gln Gly His Glu Tyr
130 135 140

Val Ile Leu Tyr Arg Ile Tyr Phe Gly Glu Val Gln Leu Ser Gly Leu
145 150 155 160

Gly Glu Gly Phe Gln Thr Val Arg Val Gly Thr Val Gly Thr Pro Val
165 170 175

Gly Thr Ile Thr Leu Ser Cys Ala Tyr Arg Ile Asn Leu Ala Phe Met
180 185 190

Ser Thr Arg Gln Phe Glu Arg Thr Pro Pro Ile Met Gly Ile Ile Ile

Gly Gly Val Val Leu Lys Glu Asp Ala Leu Pro Gly Gln Lys Thr Glu
65 70 75 80

Phe Lys Val Asp Ser Asp Asp Gln Trp Gly Glu Tyr Ser Cys Val Phe
85 90 95

Leu Pro Glu Pro Met Gly Thr Ala Asn Ile Gln Leu His Gly Pro Pro
100 105 110

Arg Val Lys Ala Val Lys Ser Ser Glu His Ile Asn Glu Gly Glu Thr
115 120 125

Ala Met Leu Val Cys Lys Ser Glu Ser Val Pro Pro Val Thr Asp Trp
130 135 140

Ala Trp Tyr Lys Ile Thr Asp Ser Glu Asp Lys Ala Leu Met Asn Gly
145 150 155 160

Ser Glu Ser Arg Phe Phe Val Ser Ser Ser Gln Gly Arg Ser Glu Leu
165 170 175

His Ile Glu Asn Leu Asn Met Glu Ala Asp Pro Gly Gln Tyr Arg Cys
180 185 190

Asn Gly Thr Ser Ser Lys Gly Ser Asp Gln Ala Ile Ile Thr Leu Arg
195 200 205

Val Arg Ser His Leu Ala Ala Leu Trp Pro Phe Leu Gly Ile Val Ala
210 215 220

Glu Val Leu Val Leu Val Thr Ile Ile Phe Ile Tyr Glu Lys Arg Arg
225 230 235 240

Lys Pro Glu Asp Val Leu Asp Asp Asp Asp Ala Gly Ser Ala Pro Leu
245 250 255

Lys Ser Ser Gly Gln His Gln Asn Asp Lys Gly Lys Asn Val Arg Gln
260 265 270

Arg Asn Ser Ser
275

<210> 1582
<211> 476
<212> PRT
<213> Homo sapiens

<220>
<221> SITE

Gly Asp Gln Arg Lys Gln Met Leu Gln Lys Tyr Lys Glu Glu Lys Gln
130 135 140

Leu Gln Lys Leu Lys Glu Gln Arg Glu Lys Ala Lys Arg Gly Ile Phe
145 150 155 160

Lys Val Gly Arg Tyr Arg Pro Asp Met Pro Xaa Phe Leu Leu Ser Asn
165 170 175

Gln Asn Ala Val Lys Ala Glu Pro Lys Lys Ala Ile Pro Ser Ser Val
180 185 190

Arg Ile Thr Arg Ser Lys Ala Lys Asp Gln Met Glu Gln Thr Lys Ile
195 200 205

Asp Asn Glu Ser Asp Val Arg Ala Ile Arg Pro Gly Pro Arg Gln Thr
210 215 220

Ser Glu Lys Lys Val Ser Asp Lys Glu Lys Lys Val Xaa Gln Pro Val
225 230 235 240

Met Pro Thr Ser Leu Arg Met Thr Arg Ser Ala Thr Gln Ala Ala Lys
245 250 255

Gln Val Pro Arg Thr Val Ser Ser Thr Thr Ala Arg Lys Pro Val Thr
260 265 270

Arg Ala Ala Asn Glu Asn Gly Thr Arg Arg Lys Gly Ala Lys
275 280 285

<210> 1581
<211> 276
<212> PRT
<213> Homo sapiens

<400> 1581
Asp Arg Arg Gly Ile Gly Ile Met Ala Ala Ala Leu Phe Val Leu Leu
1 5 10 15

Gly Phe Ala Leu Leu Gly Thr His Gly Ala Ser Gly Ala Ala Gly Thr
20 25 30

Val Phe Thr Thr Val Glu Asp Leu Gly Ser Lys Ile Leu Leu Thr Cys
35 40 45

Ser Leu Asn Asp Ser Ala Thr Glu Val Thr Gly His Arg Trp Leu Lys
50 55 60

<400> 1579
Gln Ala Xaa Thr Thr Leu Thr Lys Gly Xaa Lys Ser Trp Ser Ser Thr
1   5   10   15

Ala Val Ala Ala Ala Leu Glu Leu Val Asp Pro Pro Gly Cys Arg Asn
            20   25   30

Ser Ala Arg Gly Arg Arg Asn
        35

<210> 1580
<211> 286
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (171)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (237)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1580
Pro Thr Arg Pro Pro Thr Arg Pro Pro Thr Arg Pro Val Pro Ala Ser
1   5   10   15

Glu Ser Ala Val Val Val Gln Thr Glu Cys Ser Leu Leu Phe Val Trp
            20   25   30

Leu Arg Phe His Ala Arg Arg Trp Leu Arg Met Ser Ser Ser His Phe
        35   40   45

Ala Ser Arg His Arg Lys Asp Ile Ser Thr Glu Met Ile Arg Thr Lys
    50   55   60

Ile Ala His Arg Lys Ser Leu Ser Gln Lys Glu Asn Arg His Lys Glu
65   70   75   80

Tyr Glu Arg Asn Arg His Phe Gly Leu Lys Asp Val Asn Ile Pro Thr
                85   90   95

Leu Glu Gly Arg Ile Leu Val Glu Leu Asp Glu Thr Ser Gln Gly Leu
            100   105   110

Val Pro Glu Lys Thr Asn Val Lys Pro Arg Ala Met Lys Thr Ile Leu
        115   120   125

Ala Ser Gly Glu Lys Gly Gln Ala Glu Arg Gly Pro Trp Arg Gln Lys
225 230 235 240

Glu Ser Glu His Ala Ser Leu Tyr Pro Gly Arg Cys Thr Gln Gly His
245 250 255

Ser Cys Ala Ala Val Pro Gln His Gln Trp Glu Glu Gln Ala Val Gly
260 265 270

Ala Leu Cys Gly Arg Arg Val Cys Thr Ser Val Pro Arg Val Gln Cys
275 280 285

Cys Ser Pro Pro Arg Arg Pro Cys Arg Ser Ile Lys Gly Ala Trp Leu
290 295 300

Cys Cys Leu Gln Ser Arg Thr Thr Arg Leu Thr Arg Pro Ser Thr Thr
305 310 315 320

Thr Phe Leu Ser Cys Ser Pro Pro Ala Ala Pro Leu His Pro Ser Thr
325 330 335

Met Gly Ser Arg Ser Pro Pro Leu Gln Gly Arg Ala Pro Gln Pro Arg
340 345 350

Ser Trp Thr Gly Thr Arg Arg Arg Arg Lys Arg Arg Met Met Lys Met
355 360 365

Glu Lys Met Arg Arg Lys Ser Pro Ser Ala Ser Gly Lys Gly Ser Arg
370 375 380

Pro Phe Leu Lys Leu Thr Arg Asn Thr
385 390

<210> 1579
<211> 39
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (3)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (10)
<223> Xaa equals any of the naturally occurring L-amino acids

<211> 393
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (209)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1578

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Arg Arg Arg Arg Glu Ala Gln Glu Lys Arg Tyr Tyr Tyr Asp Leu Asp
  1               5                  10                  15

Asp Ser Tyr Asp Glu Ser Asp Glu Glu Glu Val Arg Ala His Leu Arg
             20                  25                  30

Cys Val Ala Glu Gln Pro Pro Leu Lys Leu Asp Thr Ser Ser Glu Lys
         35                  40                  45

Leu Glu Phe Leu Gln Leu Phe Gly Leu Thr Thr Gln Gln Gln Lys Glu
     50                  55                  60

Glu Leu Val Ala Gln Lys Arg Arg Lys Arg Arg Arg Met Leu Arg Glu
 65                  70                  75                  80

Arg Ser Pro Ser Pro Pro Thr Ile Gln Ser Lys Arg Gln Thr Pro Ser
                 85                  90                  95

Pro Arg Leu Ala Leu Ser Thr Arg Tyr Ser Pro Asp Glu Met Asn Asn
            100                 105                 110

Ser Pro Asn Phe Glu Glu Lys Lys Lys Phe Leu Thr Ile Phe Asn Leu
        115                 120                 125

Thr His Ile Ser Ala Glu Lys Arg Lys Asp Lys Glu Arg Leu Val Glu
    130                 135                 140

Met Leu Arg Ala Met Lys Gln Lys Ala Leu Ser Ala Ala Val Ala Asp
145                 150                 155                 160

Ser Leu Thr Asn Ser Pro Arg Asp Ser Pro Ala Val Ser Leu Ser Glu
                165                 170                 175

Pro Ala Thr Gln Gln Ala Ser Leu Asp Val Glu Lys Pro Val Gly Val
            180                 185                 190

Ala Ala Ser Leu Ser Asp Ile Pro Lys Ala Ala Asp Leu Gly Ser Trp
        195                 200                 205

Xaa Gln Val Arg Pro Gln Glu Leu Ser Arg Val Gln Glu Leu Ala Pro
    210                 215                 220
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<220>
<221> SITE
<222> (5)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1577
Gly Ala Ser Trp Xaa Ala Leu Thr Ala Ala Ser Ala Pro Gly Pro Trp
1 5 10 15

Pro Leu Ser Gly Met Ala Cys Gly Ala Thr Leu Lys Arg Pro Met Glu
20 25 30

Phe Glu Ala Ala Leu Leu Ser Pro Gly Ser Pro Lys Arg Arg Arg Cys
35 40 45

Ala Pro Leu Pro Gly Pro Thr Pro Gly Leu Arg Pro Pro Asp Ala Glu
50 55 60

Pro Pro Pro Pro Phe Gln Thr Gln Thr Pro Pro Gln Ser Leu Gln Gln
65 70 75 80

Pro Ala Pro Pro Gly Ser Glu Arg Arg Leu Pro Thr Pro Glu Gln Ile
85 90 95

Phe Gln Asn Ile Lys Gln Glu Tyr Ser Arg Tyr Gln Arg Trp Arg His
100 105 110

Leu Glu Val Val Leu Asn Gln Ser Glu Ala Cys Ala Ser Glu Ser Gln
115 120 125

Pro His Ser Ser Ala Leu Thr Ala Pro Ser Ser Pro Gly Ser Ser Trp
130 135 140

Met Lys Lys Asp Gln Pro Thr Phe Thr Leu Arg Gln Val Gly Ile Ile
145 150 155 160

Cys Glu Arg Leu Leu Lys Asp Tyr Glu Asp Lys Ile Arg Glu Glu Tyr
165 170 175

Glu Gln Ile Leu Asn Thr Lys Leu Ala Glu Gln Tyr Glu Ser Phe Val
180 185 190

Lys Phe Thr His Asp Gln Ile Met Arg Arg Tyr Gly Thr Arg Pro Thr
195 200 205

Ser Tyr Val Ser
210

<210> 1578

Met Val Phe Lys Thr Glu Asp Leu Ile Ala Trp Val Ser Gln Phe Val
275 280 285

Thr Phe Tyr Pro Gly Asp Val Ile Leu Thr Gly Thr Pro Pro Gly Val
290 295 300

Gly Val Phe Arg Lys Pro Pro Val Phe Leu Lys Lys Gly Asp Glu Val
305 310 315 320

Gln Cys Glu Ile Glu Glu Leu Gly Val Ile Ile Asn Lys Val Val
325 330 335

<210> 1576
<211> 113
<212> PRT
<213> Homo sapiens

<400> 1576
Ile Pro Glu Asp Pro His Ile Asp Glu Ser Lys Ala Lys His Gln Ala
1 5 10 15

Ile Ile Met Ser Thr Ser Leu Arg Val Ser Pro Ser Ile His Gly Tyr
20 25 30

His Phe Asp Thr Ala Ser Arg Lys Lys Ala Val Gly Asn Ile Phe Glu
35 40 45

Asn Thr Asp Gln Glu Ser Leu Glu Arg Leu Phe Arg Asn Ser Gly Asp
50 55 60

Lys Lys Ala Glu Glu Arg Ala Lys Ile Ile Phe Ala Ile Asp Gln Asp
65 70 75 80

Val Glu Glu Lys Thr Arg Ala Leu Met Ala Leu Lys Lys Arg Thr Lys
85 90 95

Asp Lys Leu Phe Gln Phe Leu Lys Leu Arg Lys Tyr Ser Ile Lys Val
100 105 110

His

<210> 1577
<211> 212
<212> PRT
<213> Homo sapiens

Pro Ser Ala Pro Arg Ala Leu Thr Leu Gln Arg Arg Lys Ile Gly Arg
1 5 10 15

Arg Gly Gln Ala Leu Met Leu Val Ser Gly Arg Arg Arg Leu Leu Thr
20 25 30

Val Leu Leu Gln Ala Gln Lys Trp Pro Phe Gln Pro Ser Arg Asp Met
35 40 45

Arg Leu Val Gln Phe Arg Ala Pro His Leu Val Gly Pro His Leu Gly
50 55 60

Leu Glu Thr Gly Asn Gly Gly Gly Val Ile Asn Leu Asn Ala Phe Asp
65 70 75 80

Pro Thr Leu Pro Lys Thr Met Thr Gln Phe Leu Glu Gln Gly Glu Ala
85 90 95

Thr Leu Ser Val Ala Arg Arg Ala Leu Ala Ala Gln Leu Pro Val Leu
100 105 110

Pro Arg Ser Glu Val Thr Phe Leu Ala Pro Val Thr Xaa Pro Asp Lys
115 120 125

Val Val Cys Val Gly Met Asn Tyr Val Asp His Cys Lys Glu Gln Asn
130 135 140

Val Pro Val Pro Lys Glu Pro Ile Ile Phe Ser Lys Phe Ala Ser Ser
145 150 155 160

Ile Val Gly Pro Tyr Asp Glu Val Val Leu Pro Pro Gln Ser Gln Glu
165 170 175

Val Asp Trp Glu Val Glu Leu Ala Val Val Ile Gly Lys Lys Gly Lys
180 185 190

His Ile Lys Ala Thr Asp Ala Met Ala His Val Ala Gly Phe Thr Val
195 200 205

Ala His Asp Val Ser Ala Arg Asp Trp Xaa Xaa Arg Arg Asn Gly Lys
210 215 220

Gln Trp Leu Leu Gly Lys Thr Phe Asp Thr Phe Cys Pro Leu Gly Pro
225 230 235 240

Ala Leu Val Thr Lys Asp Ser Val Ala Asp Pro His Asn Leu Lys Ile
245 250 255

Cys Cys Arg Val Asn Gly Glu Val Val Gln Ser Xaa Asn Thr Asn Gln
260 265 270

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    210                 215                 220

Phe Val Arg Val Arg Ser Tyr Glu Ser Gln Met Val Ile Arg Pro His
225                 230                 235                 240

Lys Ser Phe Asp Glu Asn Gly Phe Asp Tyr Leu Leu Thr Tyr Ser Asp
                245                 250                 255

Asn Pro Gln Thr Val Phe Pro Arg Tyr Cys Val Ser Trp Met Val Ser
            260                 265                 270

Ser Gly Met Pro Asp Phe Leu Glu Lys Leu His Met Ala Thr Leu Lys
        275                 280                 285

Ala Lys Asn Met Glu Ile Lys Val Lys Asp Tyr Ile Ser Ala Lys Pro
    290                 295                 300

Leu Glu Met Ser Ser Glu Ala Lys Ala Thr Ser Gln Ser Ser Glu Arg
305                 310                 315                 320

Lys Asn Glu Gly Ser Cys Gly Pro Ala Arg Ile Glu Tyr Ala
                325                 330


<210> 1575
<211> 335
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (125)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (218)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (219)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (268)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1575
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<210> 1574
<211> 334
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (4)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1574
Gly Ala Arg Xaa Asp Arg Ala Leu Leu Arg Pro Pro Leu Leu Arg Glu
1 5 10 15

Leu Thr Pro Arg Ser Pro Arg Pro Pro Leu Ala Pro Ala Ala Arg Pro
20 25 30

Ser Trp Pro Cys Leu Cys Leu Asp Gly Gly Val Ser Gly Val Phe Val
35 40 45

Trp Asp Glu Glu Arg Ile Gln Glu Glu Glu Leu Gln Arg Ser Ile Asn
50 55 60

Glu Met Lys Arg Leu Glu Glu Met Ser Asn Met Phe Gln Ser Ser Gly
65 70 75 80

Val Gln His His Pro Pro Glu Pro Lys Ala Gln Thr Glu Gly Asn Glu
85 90 95

Asp Ser Glu Gly Lys Glu Gln Arg Trp Glu Met Val Met Asp Lys Lys
100 105 110

His Phe Lys Leu Trp Arg Arg Pro Ile Thr Gly Thr His Leu Tyr Gln
115 120 125

Tyr Arg Val Phe Gly Thr Tyr Thr Asp Val Thr Pro Arg Gln Phe Phe
130 135 140

Asn Val Gln Leu Asp Thr Glu Tyr Arg Lys Lys Trp Asp Ala Leu Val
145 150 155 160

Ile Lys Leu Glu Val Ile Glu Arg Asp Val Val Ser Gly Ser Glu Val
165 170 175

Leu His Trp Val Thr His Phe Pro Tyr Pro Met Tyr Ser Arg Asp Tyr
180 185 190

Val Tyr Val Arg Arg Tyr Ser Val Asp Gln Glu Asn Asn Met Met Val
195 200 205

Leu Val Ser Arg Ala Val Glu His Pro Ser Val Pro Glu Ser Pro Glu

```
        195                 200                 205

Pro Gly Ser Val Cys Thr Thr Arg Lys Lys Thr Gly Val Gly Tyr Pro
    210                 215                 220

Gln Leu Ser Ala Val Met Glu Cys Ala Asp Ala Ala His Gly Leu Lys
225                 230                 235                 240

Gly Thr Ser Phe Gln Met Glu Val Ala Ala Val Leu Gly Met Trp Pro
                245                 250                 255

Arg Leu Leu Gly Gln Glu Leu Thr Ser
            260                 265



<210> 1573
<211> 128
<212> PRT
<213> Homo sapiens

<400> 1573
Glu Thr Thr Thr Thr Thr Leu Trp Arg Arg Asn Ala Asn Gly Asp Pro
  1               5                  10                  15

Val Cys Asn Ala Cys Gly Leu Tyr Tyr Lys Leu His Asn Val Asn Arg
             20                  25                  30

Pro Leu Thr Met Lys Lys Glu Gly Ile Gln Thr Arg Asn Arg Lys Met
         35                  40                  45

Ser Asn Lys Ser Lys Lys Ser Lys Lys Gly Ala Glu Cys Phe Glu Glu
     50                  55                  60

Leu Ser Lys Cys Met Gln Glu Lys Ser Ser Pro Phe Ser Ala Ala Ala
 65                  70                  75                  80

Leu Ala Gly His Met Ala Pro Val Gly His Leu Pro Pro Phe Ser His
                 85                  90                  95

Ser Gly His Ile Leu Pro Thr Pro Thr Pro Ile His Pro Ser Ser Ser
            100                 105                 110

Leu Ser Phe Gly His Pro His Pro Ser Ser Met Val Thr Ala Met Gly
        115                 120                 125
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Pro Val Lys Glu Pro Asn Ser Glu Asn Val Asp Ile Ser Ser Gly Gly
195 200 205

Gly Val Thr Gly Trp Lys Ser Lys Cys Cys
210 215

<210> 1572
<211> 265
<212> PRT
<213> Homo sapiens

<400> 1572
Arg Asn Leu Leu Ala Trp Pro Arg Arg Leu Ser Gly Ile Ala Arg Ala
1 5 10 15

Leu Arg Phe Ile Ala Thr Pro Arg Leu Ser Ala Met Pro His Ile Asp
20 25 30

Asn Asp Val Lys Leu Asp Phe Lys Asp Val Leu Leu Arg Pro Lys Arg
35 40 45

Ser Thr Leu Lys Ser Arg Ser Glu Val Asp Leu Thr Arg Ser Phe Ser
50 55 60

Phe Arg Asn Ser Lys Gln Thr Tyr Ser Gly Val Pro Ile Ile Ala Ala
65 70 75 80

Asn Met Asp Thr Val Gly Thr Phe Glu Met Ala Lys Val Leu Cys Lys
85 90 95

Phe Ser Leu Phe Thr Ala Val His Lys His Tyr Ser Leu Val Gln Trp
100 105 110

Gln Glu Phe Ala Gly Gln Asn Pro Asp Cys Leu Glu His Leu Ala Ala
115 120 125

Ser Ser Gly Thr Gly Ser Ser Asp Phe Glu Gln Leu Glu Gln Ile Leu
130 135 140

Glu Ala Ile Pro Gln Val Lys Tyr Ile Cys Leu Asp Val Ala Asn Gly
145 150 155 160

Tyr Ser Glu His Phe Val Glu Phe Val Lys Asp Val Arg Lys Arg Phe
165 170 175

Pro Gln His Thr Ile Met Ala Gly Asn Val Val Thr Gly Glu Met Val
180 185 190

Glu Glu Leu Ile Leu Ser Gly Ala Asp Ile Ile Lys Val Gly Ile Gly

Tyr Pro Lys Leu Ser Ser Pro Ala Asp Pro Pro Ser Asn Gly Val Glu
50 55 60

Thr Gly Gly Gln Cys Leu Val Cys Phe Leu Arg Asn Leu
65 70 75

<210> 1571
<211> 218
<212> PRT
<213> Homo sapiens

<400> 1571
Glu Gly Pro Ile Pro Trp Gly Arg Arg Arg Arg Glu Pro Glu Pro Leu
1 5 10 15

Leu Pro Met Ala Lys Lys Thr Tyr Asp Leu Leu Phe Lys Leu Leu Leu
20 25 30

Ile Gly Asp Ser Gly Val Gly Lys Thr Cys Val Leu Phe Arg Phe Ser
35 40 45

Asp Asp Ala Phe Asn Thr Thr Phe Ile Ser Thr Ile Gly Ile Asp Phe
50 55 60

Lys Ile Lys Thr Val Glu Leu Gln Gly Lys Lys Ile Lys Leu Gln Ile
65 70 75 80

Trp Asp Thr Ala Gly Gln Glu Arg Phe His Thr Ile Thr Thr Ser Tyr
85 90 95

Tyr Arg Gly Ala Met Gly Ile Met Leu Val Tyr Asp Ile Thr Asn Gly
100 105 110

Lys Ser Phe Glu Asn Ile Ser Lys Trp Leu Arg Asn Ile Asp Glu His
115 120 125

Ala Asn Glu Asp Val Glu Arg Met Leu Leu Gly Asn Lys Cys Asp Met
130 135 140

Asp Asp Lys Arg Val Val Pro Lys Gly Lys Gly Glu Gln Ile Ala Arg
145 150 155 160

Glu His Gly Ile Arg Phe Phe Glu Thr Ser Ala Lys Ala Asn Ile Asn
165 170 175

Ile Glu Lys Ala Phe Leu Thr Leu Ala Glu Asp Ile Leu Arg Lys Thr
180 185 190

Gly Gln Arg Gly Val Ala Met Ala Glu Leu Gln Gln Leu Arg Val Gln
20 25 30

Glu Ala Val Glu Ser Met Val Lys Ser Leu Glu Arg Glu Asn Ile Arg
35 40 45

Lys Met Gln Gly Leu Met Phe Arg Cys Ser Ala Ser Cys Cys Glu Asp
50 55 60

Ser Gln Ala Ser Met Lys Gln Val His Gln Cys Ile Glu Arg Cys His
65 70 75 80

Val Pro Leu Ala Gln Ala Gln Ala Leu Val Thr Ser Glu Leu Glu Lys
85 90 95

Phe Gln Asp Arg Leu Ala Arg Cys Thr Met His Cys Asn Asp Lys Ala
100 105 110

Lys Asp Ser Ile Asp Ala Gly Ser Lys Glu Leu Gln Val Lys Gln Gln
115 120 125

Leu Asp Ser Cys Val Thr Lys Cys Val Asp Asp His Met His Leu Ile
130 135 140

Pro Thr Met Thr Lys Lys Met Lys Glu Ala Leu Leu Ser Ile Gly Lys
145 150 155 160

<210> 1570
<211> 77
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (13)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1570
Gly Leu Ser Asp His Leu Val Phe Pro Phe Ser Ala Xaa His Val Ser
1 5 10 15

Arg Gly Val Ala Pro Tyr His Thr Ser Arg Ala Pro Glu Pro Tyr Phe
20 25 30

Leu Ile Ser Ser Gly Leu Asp Phe Pro Val Leu His Gln Gln Leu Gln
35 40 45

<222> (12)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1568
Ala Trp Gln Glu Phe Gly Gln Xaa Pro Gly Ala Xaa Trp Gln Arg Arg
1 5 10 15

Cys Ala Cys Val Val Glu Cys Ser Gly Arg Arg Pro Ala Gly Ala Met
20 25 30

Val Phe Leu Thr Ala Gln Leu Trp Leu Arg Asn Arg Val Thr Asp Arg
35 40 45

Tyr Phe Arg Ile Gln Glu Val Leu Lys His Ala Arg His Phe Arg Gly
50 55 60

Arg Lys Asn Arg Cys Tyr Arg Leu Ala Val Arg Thr Val Ile Arg Ala
65 70 75 80

Phe Val Lys Cys Thr Lys Ala Arg Tyr Leu Lys Lys Lys Asn Met Arg
85 90 95

Thr Leu Trp Ile Asn Arg Ile Thr Ala Ala Ser Gln Glu His Gly Leu
100 105 110

Lys Tyr Pro Ala Leu Ile Gly Asn Leu Val Lys Cys Gln Val Glu Leu
115 120 125

Asn Arg Lys Val Leu Ala Asp Leu Ala Ile Tyr Glu Pro Lys Thr Phe
130 135 140

Lys Ser Leu Ala Ala Leu Ala Ser Arg Arg Arg His Glu Gly Phe Ala
145 150 155 160

Ala Ala Leu Gly Asp Gly Lys Glu Pro Glu Gly Ile Phe Ser Arg Val
165 170 175

Val Gln Tyr His
180

<210> 1569
<211> 160
<212> PRT
<213> Homo sapiens

<400> 1569
Ala Gly Pro Tyr Ala Asp Ser Ile Trp Ala Pro Ala Arg Ser Ala Ala
1 5 10 15

Glu Leu Ser Gly Ile Ile Asp Ser Xaa Phe Leu Ser Lys Cys Glu Asn
35 40 45

Lys Cys Lys Val Leu Gly Ile Asp Thr Glu Arg Pro Ile Leu Gln Val
50 55 60

Asp Ser Cys Val Phe Ala Gly Glu Tyr Glu Asp Thr Leu Gly Thr Cys
65 70 75 80

Val Ile Phe Glu Glu Asn Val Glu His Ala Asp Thr Glu Gly Asn Asn
85 90 95

Lys Thr Val Leu Lys Tyr Lys Cys His Thr Met Lys Lys Leu Ser Met
100 105 110

Thr Arg Thr Leu Leu Thr Glu Lys Lys Glu Gly Glu Glu Asn Ile Gly
115 120 125

Gly Val Glu Trp Leu Gln Ile Lys Asp Asn Asp Phe Ser Tyr Arg Pro
130 135 140

Asn Met Ile Cys Asn Phe Leu His Glu Asn Glu Asp Glu Glu Val Val
145 150 155 160

Ala Ser Ala Pro Asp Lys Ser Leu Glu Leu Glu Glu Glu Glu Ile Gln
165 170 175

Met Asn Asp Ser Ser Asn Leu Ser Cys Glu Gln Glu Lys Pro Met His
180 185 190

Leu Glu Ile Glu Asp Ser Gly Pro Leu Ile Asp Ile Pro Ser Glu Thr
195 200 205

Glu Gly Ser Val Phe Met Glu Thr Gln Met Leu Pro
210 215 220

<210> 1568
<211> 180
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (8)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE

Val Glu Ser Glu Leu Arg Ser Ile Cys Thr Thr Val Leu Glu Leu Leu
85 90 95

Asp Lys Tyr Leu Ile Ala Asn Ala Thr Asn Pro Glu Ser Lys Val Phe
100 105 110

Tyr Leu Lys Met Lys Gly Asp Tyr Phe Arg Tyr Leu Ala Glu Val Ala
115 120 125

Cys Gly Asp Asp Arg Lys Gln Thr Ile Asp Asn Ser Gln Gly Ala Tyr
130 135 140

Gln Glu Ala Phe Asp Ile Ser Lys Lys Glu Met Gln Pro Thr His Pro
145 150 155 160

Ile Arg Leu Gly Leu Ala Leu Asn Phe Ser Val Phe Tyr Tyr Glu Ile
165 170 175

Leu Asn Asn Pro Glu Leu Ala Cys Thr Leu Ala Lys Thr Ala Phe Asp
180 185 190

Glu Ala Ile Ala Glu Leu Asp Thr Leu Asn Glu Asp Ser Tyr Lys Asp
195 200 205

Ser Thr Leu Ile Met Gln Leu Leu Arg Asp Asn Leu Thr Leu Trp Thr
210 215 220

Ser Asp Ser Ala Gly Glu Glu Cys Asp Ala Ala Glu Gly Ala Glu Asn
225 230 235 240

<210> 1567
<211> 220
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (41)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1567
Lys Ala Arg Arg Arg Gly Thr Met Ala Ala Ala Ala Asp Glu Arg Ser
1 5 10 15

Pro Glu Asp Gly Glu Asp Glu Glu Glu Glu Glu Gln Leu Val Leu Val
20 25 30

Ser Phe His Leu Asn Val Ser Gly Glu Ala Ser Leu Phe Glu Val Asn
65 70 75 80

Ile Arg Tyr Ile Gly Gly Leu Leu Ser Ala Phe Tyr Leu Thr Gly Glu
85 90 95

Glu Val Phe Arg Ile Lys Ala Ile Arg Leu Gly Glu Lys Leu Leu Pro
100 105 110

Ala Phe Asn Thr Pro Thr Gly Ile Pro Lys Gly Val Val Ser Phe Lys
115 120 125

Ser Gly Asn Trp Gly Trp Ala Thr Ala Gly Ser Ser Ser Ile Leu Ala
130 135 140

Glu Phe Gly Ser Leu His Leu Glu Phe Leu His Leu Thr Glu Leu Ser
145 150 155 160

Gly Asn Gln Val Phe Ala Glu Lys Val Arg Asn Ile Arg Lys Val Leu
165 170 175

Arg Lys Xaa Glu Lys Pro Phe Gly Leu Tyr Ser Asn Xaa Xaa Met Val
180 185 190

Leu Gln Thr Asp Pro
195

<210> 1566
<211> 240
<212> PRT
<213> Homo sapiens

<400> 1566
Ala Asp Pro Glu Gly Gln Ala Gly Arg Ala Gly Arg Ala Leu Arg Arg
1 5 10 15

His Gly His Leu His Glu Gly Ser Asp Arg Ala Gly Arg Arg Ala Val
20 25 30

Gln Arg Gly Ala Gln Pro Ala Leu Arg Gly Leu Gln Glu Arg Gly Arg
35 40 45

Gly Pro Gln Ser Ala Trp Arg Val Ile Ser Ser Ile Glu Gln Lys Thr
50 55 60

Asp Thr Ser Asp Lys Lys Leu Gln Leu Ile Lys Asp Tyr Arg Glu Lys
65 70 75 80

115 120 125

Ile Lys Ala Pro Leu Ser Lys Val Arg Leu Val Asp Ala Gly Phe Val
130 135 140

Trp Thr Glu Pro His Ser Lys Arg Leu Lys Xaa Lys Leu Thr Ile Gln
145 150 155 160

Lys Glu Val Met Asn Gly Ala Ile Leu Gln Gln Val Phe Val Val Asp
165 170 175

Tyr Xaa Xaa Pro Lys Trp Gly Glu Met Ala Xaa Arg Xaa Leu Arg Ile
180 185 190

Leu Glu Arg Leu Asp
195

<210> 1565
<211> 197
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (179)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (189)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (190)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1565
Met Gln Phe Ala Trp Gln Ser Tyr Lys Arg Tyr Ala Met Gly Lys Asn
1 5 10 15

Glu Leu Arg Pro Leu Thr Lys Asp Gly Tyr Glu Gly Asn Met Phe Gly
20 25 30

Gly Leu Ser Gly Ala Thr Val Ile Asp Ser Leu Asp Thr Leu Tyr Leu
35 40 45

Met Glu Leu Lys Glu Glu Phe Gln Glu Ala Lys Ala Trp Val Gly Glu
50 55 60

<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (155)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (178)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (179)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (187)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (189)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1564

```
Ala Arg Ser Ser Leu Trp Arg Arg Gln Pro Gly Trp Gln Leu Thr Gly
  1               5                  10                  15

Gln Pro Gly Ser Ile Leu Leu Arg Val Phe Ser Lys Ser Arg Ala Gly
             20                  25                  30

Leu Glu Ala Arg Lys Leu Lys Ala Tyr Arg Thr Met Glu Tyr Met Ala
         35                  40                  45

Glu Ser Thr Asp Arg Ser Pro Gly His Ile Leu Cys Cys Glu Cys Gly
     50                  55                  60

Val Pro Ile Ser Pro Asn Pro Ala Asn Ile Cys Val Ala Cys Leu Arg
 65                  70                  75                  80

Ser Lys Val Asp Ile Ser Gln Gly Ile Pro Lys Gln Val Ser Ile Ser
                 85                  90                  95

Phe Cys Lys Gln Cys Gln Arg Tyr Phe Gln Pro Pro Gly Thr Trp Ile
            100                 105                 110

Gln Cys Ala Leu Glu Ser Arg Glu Leu Leu Ala Leu Cys Leu Lys Lys
```

245 250 255

Met Phe Gln Pro Ser Ala Val Val Leu Gln Cys Gly Ser Asp Ser Leu
260 265 270

Ser Gly Asp Arg Leu Gly Cys Phe Asn Leu Thr Ile Lys Gly His Ala
275 280 285

Lys Cys Val Glu Phe Val Lys Ser Phe Asn Leu Pro Met Leu Met Leu
290 295 300

Gly Gly Gly Gly Tyr Thr Ile Arg Asn Val Ala Arg Cys Trp Thr Tyr
305 310 315 320

Glu Thr Ala Val Ala Leu Asp Thr Glu Ile Pro Asn Glu Leu Pro Tyr
325 330 335

Asn Asp Tyr Phe Glu Tyr Phe Gly Pro Asp Phe Lys Leu His Ile Ser
340 345 350

Pro Ser Asn Met Thr Asn Gln Asn Thr Asn Glu Tyr Leu Glu Lys Ile
355 360 365

Lys Gln Arg Leu Phe Glu Asn Leu Arg Met Leu Pro His Ala Pro Gly
370 375 380

Val Gln Met Gln Ala Ile Pro Glu Asp Ala Ile Pro Glu Glu Ser Gly
385 390 395 400

Asp Glu Asp Glu Asp Asp Pro Asp Lys Arg Ile Ser Ile Cys Ser Ser
405 410 415

Asp Lys Arg Ile Ala Cys Glu Glu Glu Phe Ser Asp Ser Glu Glu Glu
420 425 430

Gly Glu Gly Gly Arg Lys Asn Ser Ser Asn Phe Lys Lys Ala Lys Arg
435 440 445

Val Lys Thr Glu Asp Glu Lys Glu Lys Asp Pro Glu Glu Lys Lys Glu
450 455 460

Val Thr Glu Glu Glu Lys Thr Lys Glu Glu Lys Pro Glu Ala Lys Gly
465 470 475 480

Val Lys Glu Glu Val Lys Leu Ala
485

<210> 1564
<211> 197

<211> 488
<212> PRT
<213> Homo sapiens

<400> 1563

Gly Arg Glu Ala Ser Lys Met Ala Gln Thr Gln Gly Thr Arg Arg Lys
1   5   10   15

Val Cys Tyr Tyr Tyr Asp Gly Asp Val Gly Asn Tyr Tyr Tyr Gly Gln
            20   25   30

Gly His Pro Met Lys Pro His Arg Ile Arg Met Thr His Asn Leu Leu
        35   40   45

Leu Asn Tyr Gly Leu Tyr Arg Lys Met Glu Ile Tyr Arg Pro His Lys
    50   55   60

Ala Asn Ala Glu Glu Met Thr Lys Tyr His Ser Asp Asp Tyr Ile Lys
65   70   75   80

Phe Leu Arg Ser Ile Arg Pro Asp Asn Met Ser Glu Tyr Ser Lys Gln
                85   90   95

Met Gln Arg Phe Asn Val Gly Glu Asp Cys Pro Val Phe Asp Gly Leu
            100   105   110

Phe Glu Phe Cys Gln Leu Ser Thr Gly Gly Ser Val Ala Ser Ala Val
        115   120   125

Lys Leu Asn Lys Gln Gln Thr Asp Ile Ala Val Asn Trp Ala Gly Gly
    130   135   140

Leu His His Ala Lys Lys Ser Glu Ala Ser Gly Phe Cys Tyr Val Asn
145   150   155   160

Asp Ile Val Leu Ala Ile Leu Glu Leu Leu Lys Tyr His Gln Arg Val
                165   170   175

Leu Tyr Ile Asp Ile Asp Ile His His Gly Asp Gly Val Glu Glu Ala
            180   185   190

Phe Tyr Thr Thr Asp Arg Val Met Thr Val Ser Phe His Lys Tyr Gly
        195   200   205

Glu Tyr Phe Pro Gly Thr Gly Asp Leu Arg Asp Ile Gly Ala Gly Lys
    210   215   220

Gly Lys Tyr Tyr Ala Val Asn Tyr Pro Leu Arg Asp Gly Ile Asp Asp
225   230   235   240

Glu Ser Tyr Glu Ala Ile Phe Lys Pro Val Met Ser Lys Val Met Glu

<222> (4)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (193)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1562
Arg Gly Leu Xaa Ser Arg Gly Ala Gly Gln Val Pro Gly Cys Leu Gly
1   5   10   15

Trp His Arg Ser Val Val Pro Gly Gly Ala Val Ala Ala Leu Pro Pro
            20   25   30

Ser Arg Arg Gln Arg Val Arg Gly Pro Val Arg Pro Glu Pro Gly Ala
        35   40   45

Thr Pro Arg Ala Val Leu Gly Glu Thr Arg Val Pro Val Leu Arg Leu
    50   55   60

Leu Leu Gly Ser Ala Leu Val Gly Arg Leu Leu Asp Ser Leu Lys Arg
65   70   75   80

Asp Tyr Ala Gly Lys Pro Gln Pro Pro Ile Lys Ser Glu Arg Arg Asn
                85   90   95

Pro Pro Ser Tyr Ala Met Ala Gly Lys Lys Val Leu Ile Val Tyr Ala
            100   105   110

His Gln Glu Pro Lys Ser Phe Asn Gly Ser Leu Lys Asn Val Ala Val
        115   120   125

Asp Glu Leu Ser Arg Gln Gly Cys Thr Val Thr Val Ser Asp Leu Tyr
    130   135   140

Ala Met Asn Phe Glu Pro Arg Ala Thr Asp Lys Asp Ile Thr Gly Thr
145   150   155   160

Leu Ser Asn Pro Glu Val Phe Asn Tyr Gly Val Glu Thr His Glu Ala
                165   170   175

Tyr Lys Gln Arg Ser Leu Ala Ser Asp Ile Thr Asp Glu Gln Lys Lys
            180   185   190

Xaa Ser Gly Arg Leu Thr
        195

<210> 1563

<400> 1560
Glu Leu Ser Pro Leu Ser Phe Arg Ser Thr Arg Gly Phe His Thr Tyr
1 5 10 15

Phe Ile Glu His Pro Phe Ile Phe Ile Ser Val Tyr Arg Thr Lys Lys
20 25 30

Asn Ser Ser Val Lys Asn Leu Cys Cys Gly Leu Ser Ile Phe Ala Ala
35 40 45

Phe Gly Leu Arg Trp Arg Ile Lys Ala Ser Leu Pro Leu Ser Ser Val
50 55 60

Phe Arg Lys Leu
65

<210> 1561
<211> 80
<212> PRT
<213> Homo sapiens

<400> 1561
Leu Met Met Thr Ile Tyr Ala Leu Ser Asn Glu Phe Ala Phe Lys Ile
1 5 10 15

Asn Glu Glu Gln Leu Ser Phe Phe Pro Leu Leu Ser Val Gln Leu Trp
20 25 30

His Ala Gln Arg Phe Leu Leu Asp Ser Ser Trp Ser Gly Val Ile Pro
35 40 45

Phe Phe Phe Ser Cys Ser Cys Leu Pro Phe Leu Tyr Pro Pro Lys Trp
50 55 60

Arg Gln Ile His Asp Leu Lys Asp Thr Gln Tyr Leu Leu Asn Ser Ser
65 70 75 80

<210> 1562
<211> 198
<212> PRT
<213> Homo sapiens

<220>
<221> SITE

Ile Gly Leu Gly Glu Cys Glu Val Ser Cys Ser Ala Phe Val Glu Phe
340 345 350

Val Lys Met Cys Gly Gly Arg Leu Ser Gln Leu Ser Ile Met Glu Glu
355 360 365

Val Leu Ile Pro Asp Gln Lys Tyr Ser Leu Glu Gln Ile His Trp Glu
370 375 380

Val Ser Lys His Leu Gly Arg Val Trp Phe Pro Asp Met Met Pro Thr
385 390 395 400

Trp

<210> 1559
<211> 108
<212> PRT
<213> Homo sapiens

<400> 1559
Ala Gly Ala Gly Gly Arg Val Gly Asp Arg Ala Gly Val Arg Glu Arg
1 5 10 15

Gln Gln Ser Gly His Arg His Ser Glu Gln Pro Arg Arg Arg Leu Cys
20 25 30

Val Pro Val Asp Cys Leu Ala Ala Pro Ser Pro Thr Pro Arg Phe Leu
35 40 45

Val Lys Arg Leu Arg Ala Ala Val Trp Gly Gly Gly Val Trp Ser Arg
50 55 60

Val Leu Cys Pro Gln Trp Leu Leu Ser Gly Gly Arg Leu Phe Ala Glu
65 70 75 80

Val Arg Arg Asp Ser Leu Gly Val Glu His Ile Thr Gly Phe Gly Cys
85 90 95

Leu Val Cys Glu His His Arg Val Cys Gly Cys Thr
100 105

<210> 1560
<211> 68
<212> PRT
<213> Homo sapiens

Arg Ala Ala Gly Pro Ala Ala Ala Ala Val Pro Gly Ala Arg Val Val
65 70 75 80

Cys Gly Gly Ser Arg Pro Arg Gln Gln Val Asp Ser Ser Lys Glu Ser
85 90 95

Ala Glu Ala Ala Cys Asp Ile Leu Ser Gln Leu Val Asn Cys Ser Leu
100 105 110

Lys Thr Leu Gly Leu Ile Ser Thr Ala Arg Pro Ser Phe Met Asp Leu
115 120 125

Pro Lys Ser His Phe Ile Ser Ala Leu Thr Val Val Phe Val Asn Ser
130 135 140

Lys Ser Leu Ser Ser Leu Lys Ile Asp Asp Thr Pro Val Asp Asp Pro
145 150 155 160

Ser Leu Lys Val Leu Val Ala Asn Asn Ser Asp Thr Leu Lys Leu Leu
165 170 175

Lys Met Ser Ser Cys Pro His Val Ser Pro Ala Gly Ile Leu Cys Val
180 185 190

Ala Asp Gln Cys His Gly Leu Arg Glu Leu Ala Leu Asn Tyr His Leu
195 200 205

Leu Ser Asp Glu Leu Leu Leu Ala Leu Ser Ser Glu Lys His Val Arg
210 215 220

Leu Glu His Leu Arg Ile Asp Val Val Ser Glu Asn Pro Gly Gln Thr
225 230 235 240

His Phe His Thr Ile Gln Lys Ser Ser Trp Asp Ala Phe Ile Arg His
245 250 255

Ser Pro Lys Val Asn Leu Val Met Tyr Phe Phe Leu Tyr Glu Glu Glu
260 265 270

Phe Asp Pro Phe Phe Arg Tyr Glu Ile Pro Ala Thr His Leu Tyr Phe
275 280 285

Gly Arg Ser Val Ser Lys Asp Val Leu Gly Arg Val Gly Met Thr Cys
290 295 300

Pro Arg Leu Val Glu Leu Val Val Cys Ala Asn Gly Leu Arg Pro Leu
305 310 315 320

Asp Glu Glu Leu Ile Arg Ile Ala Glu Arg Cys Lys Asn Leu Ser Ala
325 330 335

260 265 270

Tyr Ser Gly Gly Cys Tyr Thr Ala Tyr Phe Pro Pro Gly Ile Met Thr
275 280 285

Gln Tyr Gly Arg Val Ile Arg Gln Pro Val Gly Arg Ile Phe Phe Ala
290 295 300

Gly Thr Glu Thr Ala Thr Lys Trp Ser Gly Tyr Met Glu Gly Ala Val
305 310 315 320

Glu Ala Gly Glu Arg Ala Ala Arg Glu Val Leu Asn Gly Leu Gly Lys
325 330 335

Val Thr Glu Lys Asp Ile Trp Val Gln Glu Pro Glu Ser Lys Asp Val
340 345 350

Pro Ala Val Glu Ile Thr His Thr Phe Trp Glu Arg Asn Leu Pro Ser
355 360 365

Val Ser Gly Leu Leu Lys Ile Ile Gly Phe Ser Thr Ser Val Thr Ala
370 375 380

Leu Gly Phe Val Leu Tyr Lys Tyr Lys Leu Leu Pro Arg Ser
385 390 395

<210> 1558
<211> 401
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (58)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1558
Ser Leu Ala Ala Pro Gly Ile Pro Glu His Arg Gln Arg Gly Thr Glu
1 5 10 15

Lys Glu Ser Phe Phe Leu Gly Ser Gln Ser Arg Lys Gly Gly Ala Ala
20 25 30

Leu Ala Pro Ser Ala Gly Pro Ala Pro Arg Met Arg Ala Asp Ala Gly
35 40 45

Gly Arg Gly Cys Gly Ser Ala Asn Gly Xaa Pro Gly Ala Pro His Val
50 55 60

<400> 1557

Phe Arg Glu Met Val Ser Ser Ser Asn Leu Pro Gln Gly Trp Leu Glu
1 5 10 15

Val Gln Gly Ile Pro Glu Gly Trp Asp Gly Val Ala Gly Trp Tyr Leu
20 25 30

Pro Gly Ile Asn Pro Gly Arg Thr Ala Arg Arg Phe Ala Tyr Leu Phe
35 40 45

Val Asn Ile Asn Val Thr Ser Glu Pro His Glu Val Leu Ala Leu Trp
50 55 60

Phe Leu Trp Tyr Val Lys Gln Cys Gly Gly Thr Thr Arg Ile Phe Ser
65 70 75 80

Val Thr Asn Gly Gly Gln Glu Arg Lys Phe Val Gly Gly Ser Gly Gln
85 90 95

Val Ser Glu Arg Ile Met Asp Leu Leu Gly Asp Gln Val Lys Leu Asn
100 105 110

His Pro Val Thr His Val Asp Gln Ser Ser Asp Asn Ile Ile Ile Glu
115 120 125

Thr Leu Asn His Glu His Tyr Glu Cys Lys Tyr Val Ile Asn Ala Ile
130 135 140

Pro Pro Thr Leu Thr Ala Lys Ile His Phe Arg Pro Glu Leu Pro Ala
145 150 155 160

Glu Arg Asn Gln Leu Ile Gln Arg Leu Pro Met Gly Ala Val Ile Lys
165 170 175

Cys Met Met Tyr Tyr Lys Glu Ala Phe Trp Lys Lys Lys Asp Tyr Cys
180 185 190

Gly Cys Met Ile Ile Glu Asp Glu Asp Ala Pro Ile Ser Ile Thr Leu
195 200 205

Asp Asp Thr Lys Pro Asp Gly Ser Leu Pro Ala Ile Met Gly Phe Ile
210 215 220

Leu Ala Arg Lys Ala Asp Arg Leu Ala Lys Leu His Lys Glu Ile Arg
225 230 235 240

Lys Lys Lys Ile Cys Glu Leu Tyr Ala Lys Val Leu Gly Ser Gln Glu
245 250 255

Ala Leu His Pro Val His Tyr Glu Glu Lys Asn Trp Cys Glu Glu Gln

Gln His Lys Arg Ile His Thr Gly Glu Met Pro Tyr Lys Cys Asn Glu
35 40 45

Cys Gly Xaa Tyr Phe Ser His His Ser Asn Leu Ile Val His Gln Arg
50 55 60

Val His Asn Gly Ala Arg Pro Tyr Lys Cys Ser Asp Cys Gly Lys Val
65 70 75 80

Phe Arg His Lys Ser Thr Leu Val Gln His Glu Ser Ile His Thr Gly
85 90 95

Glu Asn Pro Tyr Val Ala Val Leu Trp Glu Ile Leu Trp Pro Gln Ile
100 105 110

His Pro His
115

<210> 1556
<211> 81
<212> PRT
<213> Homo sapiens

<400> 1556
Cys Gly Lys Thr Ala Ile Arg Lys Arg Lys Tyr Arg Ser Leu Asn Asn
1 5 10 15

Leu Trp Val Arg Lys Ala Ser Leu Asn Asn Gln Lys Leu Ala Val Leu
20 25 30

Ala Leu Phe Ser Ser Leu Phe Met Lys Met Lys Ser Glu Ile Thr Lys
35 40 45

Cys Lys Pro Gly Asn Ile Ile Leu Val Leu Leu Ser Trp Ile His Val
50 55 60

Lys Lys Arg Leu His Ser Leu Leu Met Leu Pro Thr Ser Cys Gly Phe
65 70 75 80

Val

<210> 1557
<211> 398
<212> PRT
<213> Homo sapiens

325 330 335

Asp Lys Met Thr Gly Ile Gly Lys Gly Phe Gly Tyr Val Leu Phe Glu
340 345 350

Asn Thr Asp Ser Val His Leu Ala Leu Lys Leu Asn Asn Ser Glu Leu
355 360 365

Met Gly Arg Lys Leu Arg Val Met Arg Ser Val Asn Lys Glu Lys Phe
370 375 380

Lys Gln Gln Asn Ser Asn Pro Arg Leu Lys Asn Val Ser Lys Pro Lys
385 390 395 400

Gln Gly Leu Asn Phe Thr Ser Lys Thr Ala Glu Gly His Pro Lys Ser
405 410 415

Leu Phe Ile Gly Glu Lys Ala Val Leu Leu Lys Thr Lys Lys Lys Gly
420 425 430

Gln Lys Lys Ser Gly Arg Pro Lys Lys Gln Arg Lys Gln Lys
435 440 445

<210> 1555
<211> 115
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (3)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (19)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (51)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1555
Ala Thr Xaa Val Gln His Gln Arg Ile His Thr Gly Glu Arg Pro Tyr
1 5 10 15

Glu Cys Xaa Glu Cys Gly Lys Thr Phe Ser Arg Lys Asp Asn Leu Thr
20 25 30

50 55 60

Ser Arg Gly Gly Thr Gly Arg Leu Ala Ser Leu Phe Ser Ser Leu Glu
65 70 75 80

Pro Gln Ile Gln Pro Val Tyr Val Pro Val Pro Lys Gln Thr Ile Lys
85 90 95

Lys Thr Lys Arg Asn Glu Glu Glu Glu Ser Thr Ser Gln Ile Glu Arg
100 105 110

Pro Leu Ser Gln Glu Pro Ala Lys Lys Val Lys Ala Lys Lys Lys His
115 120 125

Thr Asn Ala Glu Lys Lys Leu Ala Asp Arg Glu Ser Ala Leu Ala Ser
130 135 140

Ala Asp Leu Glu Glu Glu Ile His Gln Lys Gln Gly Gln Lys Arg Lys
145 150 155 160

Asn Ser Gln Pro Gly Val Lys Val Ala Asp Arg Lys Ile Leu Asp Asp
165 170 175

Thr Glu Asp Thr Val Val Ser Gln Arg Lys Lys Ile Gln Ile Asn Gln
180 185 190

Glu Glu Glu Arg Leu Lys Asn Glu Arg Thr Val Phe Val Gly Asn Leu
195 200 205

Pro Val Thr Cys Asn Lys Lys Lys Leu Lys Ser Phe Phe Lys Glu Tyr
210 215 220

Gly Gln Ile Glu Ser Val Arg Phe Arg Ser Leu Ile Pro Ala Glu Gly
225 230 235 240

Thr Leu Ser Lys Lys Leu Ala Ala Ile Lys Arg Lys Ile His Pro Asp
245 250 255

Gln Lys Asn Ile Asn Ala Tyr Val Val Phe Lys Glu Glu Ser Ala Ala
260 265 270

Thr Gln Ala Leu Lys Arg Asn Gly Ala Gln Ile Ala Asp Gly Phe Arg
275 280 285

Ile Arg Val Asp Leu Ala Ser Glu Thr Ser Ser Arg Asp Lys Arg Ser
290 295 300

Val Phe Val Gly Asn Leu Pro Tyr Lys Val Glu Glu Ser Ala Ile Glu
305 310 315 320

Lys His Phe Leu Asp Cys Gly Ser Ile Met Ala Val Arg Ile Val Arg

Trp Ile Val Phe Ile Phe Leu Ile Leu Leu Asn Thr Ala Ala Gln Val
275 280 285

Ala Tyr Val Leu Gln Asp Trp Trp Leu Ser Tyr Trp Ala Asn Lys Gln
290 295 300

Ser Met Leu Asn Val Thr Val Asn Gly Gly Gly Asn Val Thr Glu Lys
305 310 315 320

Leu Asp Leu Asn Trp Tyr Leu Gly Ile Tyr Ser Gly Leu Thr Val Ala
325 330 335

Thr Val Leu Phe Gly Ile Ala Arg Ser Leu Leu Val Phe Tyr Val Leu
340 345 350

Val Asn Ser Ser Gln Thr Leu His Asn Lys Met Phe Glu Ser Ile Leu
355 360 365

Lys Ala Pro Val Leu Phe Phe Asp Arg Asn Pro Ile Gly Arg Ile Leu
370 375 380

Asn Arg Phe Ser Lys Asp Ile Gly His Leu Asp Asp Leu Leu Pro Leu
385 390 395 400

Thr Phe Leu Asp Phe Ile Gln Val Thr Leu Arg Val Met Ser Gly Ser
405 410 415

Gln Met Glu Asn Gly Ser Ser Tyr Phe Phe Lys Pro Phe Ser Trp Gly
420 425 430

Leu Gly Val Gly Leu Ser Ala Trp Leu Cys Val Met Leu Thr
435 440 445

<210> 1554
<211> 446
<212> PRT
<213> Homo sapiens

<400> 1554
Arg Lys Cys Glu Leu Ala His Cys Ser Leu Gly Val Phe Gly Val Arg
1 5 10 15

Met Ala Leu Glu Gly Met Ser Lys Arg Lys Arg Lys Arg Ser Val Gln
20 25 30

Glu Gly Glu Asn Pro Asp Asp Gly Val Arg Gly Ser Pro Pro Glu Asp
35 40 45

Tyr Arg Leu Gly Gln Val Ala Ser Ser Leu Phe Arg Gly Glu His His

```
Glu Leu Leu Ala Val Val Gly Pro Val Gly Ala Gly Lys Ser Ser Leu
1               5                   10                  15

Leu Ser Ala Val Leu Gly Glu Leu Ala Pro Ser His Gly Leu Val Ser
            20                  25                  30

Val His Gly Arg Ile Ala Tyr Val Ser Gln Gln Pro Trp Val Phe Ser
        35                  40                  45

Gly Thr Leu Arg Ser Asn Ile Leu Phe Gly Lys Lys Xaa Glu Lys Xaa
    50                  55                  60

Arg Tyr Glu Lys Val Ile Lys Ala Cys Ala Leu Lys Lys Asp Leu Gln
65                  70                  75                  80

Leu Leu Glu Asp Gly Asp Leu Thr Val Ile Gly Asp Arg Gly Thr Thr
                85                  90                  95

Leu Ser Xaa Gly Gln Lys Ala Arg Val Asn Leu Ala Arg Ala Val Tyr
            100                 105                 110

Gln Asp Ala Asp Ile Tyr Leu Leu Asp Asp Pro Leu Ser Ala Val Asp
        115                 120                 125

Ala Glu Val Ser Arg His Leu Phe Glu Leu Cys Ile Cys Gln Ile Leu
    130                 135                 140

His Glu Lys Ile Thr Ile Leu Val Thr His Gln Leu Gln Tyr Leu Lys
145                 150                 155                 160

Ala Ala Ser Gln Ile Leu Ile Leu Lys Asp Gly Lys Met Val Gln Lys
                165                 170                 175

Gly Thr Tyr Thr Glu Phe Leu Lys Ser Gly Ile Asp Phe Gly Ser Leu
            180                 185                 190

Leu Lys Lys Asp Asn Glu Glu Ser Glu Gln Pro Pro Val Pro Gly Thr
        195                 200                 205

Pro Thr Leu Arg Asn Arg Thr Phe Ser Glu Ser Ser Val Trp Ser Gln
    210                 215                 220

Gln Ser Ser Arg Pro Ser Leu Lys Asp Gly Ala Leu Glu Ser Gln Asp
225                 230                 235                 240

Thr Glu Asn Val Pro Val Thr Leu Ser Glu Glu Asn Arg Ser Glu Gly
                245                 250                 255

Lys Val Gly Phe Gln Ala Tyr Lys Asn Tyr Phe Arg Ala Gly Ala His
            260                 265                 270
```

Asn Ile Ala Glu Thr Ser Ile Thr Ile Asp Asp Val Val Tyr Val Ile
325 330 335

Asp Gly Gly Lys Ile Lys Glu Thr His Phe Asp Thr Gln Asn Asn Ile
340 345 350

Ser Thr Met Ser Ala Glu Trp Val Ser Lys Ala Asn Ala Lys Gln Arg
355 360 365

Lys Gly Arg Ala Gly Arg Val Gln Pro Gly His Cys Tyr His Leu Tyr
370 375 380

Asn Gly Leu Arg Ala Ser Leu Leu Asp Asp Tyr Gln Leu Pro Glu Ile
385 390 395 400

Leu Arg Thr Pro Leu Glu Glu Leu Cys Leu Gln Ile Lys Xaa Phe Lys
405 410 415

Ala Arg Trp Xaa Cys Leu Phe Leu Ser Arg Leu Met Xaa Pro Pro Ser
420 425 430

Asn Glu Ala Val Leu Leu Ser Ile Arg Xaa Leu Met Glu Leu Glu Arg
435 440 445

Phe Gly
450

<210> 1553
<211> 446
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (61)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (64)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (99)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1553

Arg Ala Glu Ser Cys Gly Ser Gly Asn Ser Thr Gly Tyr Gln Ile Arg
50 55 60

Leu Gln Ser Arg Leu Pro Arg Lys Gln Gly Ser Ile Leu Tyr Cys Thr
65 70 75 80

Thr Gly Ile Ile Leu Gln Trp Leu Gln Ser Asp Pro Tyr Leu Ser Ser
85 90 95

Val Ser His Ile Val Leu Asp Glu Ile His Glu Arg Asn Leu Gln Ser
100 105 110

Asp Val Leu Met Thr Val Val Lys Asp Leu Leu Asn Phe Arg Ser Asp
115 120 125

Leu Lys Val Ile Leu Met Ser Ala Thr Leu Asn Ala Glu Lys Phe Ser
130 135 140

Glu Tyr Phe Gly Asn Cys Pro Met Ile His Ile Pro Gly Phe Thr Phe
145 150 155 160

Pro Val Val Glu Tyr Leu Leu Glu Asp Val Ile Glu Lys Ile Arg Tyr
165 170 175

Val Pro Glu Gln Lys Glu His Arg Xaa Gln Phe Lys Arg Gly Phe Met
180 185 190

Gln Gly His Val Asn Arg Gln Xaa Lys Glu Glu Lys Glu Ala Ile Tyr
195 200 205

Lys Glu Arg Trp Pro Asp Tyr Val Arg Glu Leu Arg Arg Arg Tyr Ser
210 215 220

Ala Ser Thr Val Asp Val Ile Glu Met Met Glu Asp Asp Lys Val Asp
225 230 235 240

Leu Asn Leu Ile Val Ala Leu Ile Arg Tyr Ile Val Leu Glu Glu Glu
245 250 255

Asp Gly Ala Ile Leu Val Phe Leu Pro Gly Trp Asp Asn Ile Ser Thr
260 265 270

Leu His Asp Leu Leu Met Ser Gln Val Met Phe Lys Ser Asp Lys Phe
275 280 285

Leu Ile Ile Pro Leu His Ser Leu Met Pro Thr Val Asn Gln Thr Gln
290 295 300

Val Phe Lys Arg Thr Pro Pro Gly Val Arg Lys Ile Val Ile Ala Thr
305 310 315 320

100 105 110

Ser Lys

<210> 1552
<211> 450
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (185)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (200)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
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<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (429)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (442)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1552
Thr Gly Cys Gly Lys Thr Thr Gln Val Thr Gln Phe Ile Leu Asp Asn
1 5 10 15

Tyr Ile Glu Arg Gly Lys Gly Ser Ala Cys Arg Ile Val Cys Thr Gln
20 25 30

Pro Arg Arg Ile Ser Ala Ile Ser Val Ala Glu Arg Val Ala Ala Glu
35 40 45

Phe Glu Trp Leu Tyr Ala Val Ser Ser
35 40

<210> 1550
<211> 61
<212> PRT
<213> Homo sapiens

<400> 1550
Phe Phe Ala Pro Leu Lys Pro Val Arg Ile Thr Met Glu Tyr Ser Ser
1 5 10 15

Ser Gly Lys Ala Thr Gly Glu Ala Asp Val His Phe Glu Thr His Glu
20 25 30

Asp Ala Val Ala Ala Met Leu Lys Asp Arg Ser His Val His His Arg
35 40 45

Tyr Ile Glu Leu Phe Leu Asn Ser Cys Pro Lys Gly Lys
50 55 60

<210> 1551
<211> 114
<212> PRT
<213> Homo sapiens

<400> 1551
Gly Ser Leu Ala Ser Phe Leu Ala Cys Ser Ser Glu Phe Phe Gln Pro
1 5 10 15

Pro Pro Thr Ala Gln Phe Gln Ser His Phe Ser Thr Phe Arg Tyr Leu
20 25 30

Leu Gln Gln His Leu Lys Tyr Leu Glu Asn Ser Phe Met Pro Ala Ser
35 40 45

Leu Pro Asp Asp Leu Asn Met Val Leu Asp Leu Glu Phe Thr Phe Leu
50 55 60

Gln Gly His Cys Leu Phe Gln Arg Gly Glu Phe Thr Cys Ala Arg Val
65 70 75 80

Phe Thr Leu Gly Val Leu Pro Glu Leu Pro Gln Asp Glu Ser Gly Glu
85 90 95

Pro Thr Thr Ala Glu Lys Phe Ser Gln Cys Arg Asn Ile Glu Glu Phe

<210> 1548
<211> 69
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (37)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (59)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (63)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1548
Lys Lys Ser Leu Arg Cys Glu Tyr Arg Ile Asp Ile Glu Arg Leu Tyr
1 5 10 15

Met Ser Lys Thr His Leu Ser Ser Ser His Arg Pro Leu Gln Ser Gly
20 25 30

His Val Gly Gln Xaa Gly Thr Gly Ala Gly Asp Ala Pro Pro Gly Gln
35 40 45

Asn Ala Pro Phe Val Ala Leu Pro Asp Thr Xaa Tyr Leu Leu Xaa Lys
50 55 60

Arg Glu Thr Gly Ser
65

<210> 1549
<211> 41
<212> PRT
<213> Homo sapiens

<400> 1549
Ile Leu Leu Tyr Lys His Phe His Ile Leu Pro Leu His Leu Thr Ile
1 5 10 15

Gln His Lys Gln Leu Leu Met Ala Leu Arg Ile Val Cys Thr Cys Asn
20 25 30

Ser Val Pro Leu Ile Ser Arg Glu Glu Ala Leu Gln Asp Pro Arg Asn
145 150 155 160

Pro Ser Pro

<210> 1547
<211> 176
<212> PRT
<213> Homo sapiens

<400> 1547
Ser Thr His Ala Ser Ala His Ala Ser Gly Pro Val Pro Ser Ala Ala
1 5 10 15

Ser Ser Ala Gly Gly Ser Gly Gly Leu Ser Phe Arg Ala Ala Ser Ser
20 25 30

Leu Pro Val Ser Pro Ser Leu Ala Val Ser Met Lys Ala Phe Ser Pro
35 40 45

Val Arg Ser Val Arg Lys Asn Ser Leu Ser Asp His Ser Leu Gly Ile
50 55 60

Ser Arg Ser Lys Thr Pro Val Asp Asp Pro Met Ser Leu Leu Tyr Asn
65 70 75 80

Met Asn Asp Cys Tyr Ser Lys Leu Lys Glu Leu Val Pro Ser Ile Pro
85 90 95

Gln Asn Lys Lys Val Ser Lys Met Glu Ile Leu Gln His Val Ile Asp
100 105 110

Tyr Ile Leu Asp Leu Gln Ile Ala Leu Asp Ser His Pro Thr Ile Val
115 120 125

Ser Leu His His Gln Arg Pro Gly Gln Asn Gln Ala Ser Arg Thr Pro
130 135 140

Leu Thr Thr Leu Asn Thr Asp Ile Ser Ile Leu Ser Leu Gln Ala Ser
145 150 155 160

Glu Phe Pro Ser Glu Leu Met Ser Asn Asp Ser Lys Ala Leu Cys Gly
165 170 175

115 120 125

Gln Lys His Val Leu Cys Ala Tyr Cys Tyr Glu Lys Val Cys Lys Glu
130 135 140

Thr Ala Glu Ile Arg Arg Gln Ile Gly Lys Gln Glu Gly Gly Pro Phe
145 150 155 160

Lys Ala Pro Thr Ile Glu Thr Val Val Leu Tyr Thr Gly Glu Thr Pro
165 170 175

Ser Glu Gln Asp Gln Gly Lys Arg Ile Ile Glu Arg Asp Arg Lys Arg
180 185 190

Pro Ser Trp Phe Thr Gln Asn
195

<210> 1546
<211> 163
<212> PRT
<213> Homo sapiens

<400> 1546
Pro Thr Arg Pro Pro Thr Arg Pro Arg Arg Trp Arg Arg Arg Thr Ala
1 5 10 15

Pro Glu Arg Ala Gly Ala Met Ser Ala Ala Arg Pro Gln Phe Ser Ile
20 25 30

Asp Asp Ala Phe Glu Leu Ser Leu Glu Asp Gly Gly Pro Gly Pro Glu
35 40 45

Ser Ser Gly Val Ala Arg Phe Gly Pro Leu His Phe Glu Arg Arg Ala
50 55 60

Arg Phe Glu Val Ala Asp Glu Asp Lys Gln Ser Arg Leu Arg Tyr Gln
65 70 75 80

Asn Leu Glu Asn Asp Glu Asp Gly Ala Gln Ala Ser Pro Glu Pro Asp
85 90 95

Gly Gly Val Gly Thr Arg Leu Gly Pro Gly Ile Pro Ala Glu Leu Pro
100 105 110

Pro Gly Leu Pro Val Leu Leu Pro Ala Leu Leu Arg Glu Val Ile Ala
115 120 125

Ala Gln Arg Gly Pro Leu Ala Pro Met Gly Ala Pro Leu Leu Pro Cys
130 135 140

Val Val Thr Gly Ser Gly Ser Trp His Gln Val Ala Ser Ile Ile Arg
1   5   10   15

Ser Leu Thr Glu Asp Asn Met Gln Asn Ser His Met Asp Glu Tyr Arg
            20   25   30

Asn Ser Ser Asn Gly Ser Thr Gly Asn Ser Ser Glu Val Val Val Glu
        35   40   45

His Pro Thr Asp Phe Ser Thr Glu Ile Met Asn Val Thr Glu Met Glu
    50   55   60

Gln Ser Pro Asp Asp Ser Pro Asn Val Asn Ala Ser Thr Glu Glu Thr
65   70   75   80

Glu Met Ala Ser Ala Val Asp Leu Pro Val Thr Leu Thr Glu Thr Glu
                85   90   95

Ala Ile Ser Leu Gln Asn Met Lys Asn Phe Gly Lys Leu
            100   105

<210> 1545
<211> 199
<212> PRT
<213> Homo sapiens

<400> 1545
Thr His Ala Ser Gly Pro Thr Arg Pro Gly Lys Met Ala Leu Ala Met
1   5   10   15

Leu Val Leu Val Val Ser Pro Trp Ser Ala Ala Arg Gly Val Leu Arg
            20   25   30

Asn Tyr Trp Glu Arg Leu Leu Arg Lys Leu Pro Gln Ser Arg Pro Gly
        35   40   45

Phe Pro Ser Pro Pro Trp Gly Pro Ala Leu Ala Val Gln Gly Pro Ala
    50   55   60

Met Phe Thr Glu Pro Ala Asn Asp Thr Ser Gly Ser Lys Glu Asn Ser
65   70   75   80

Ser Leu Leu Asp Ser Ile Phe Trp Met Ala Ala Pro Lys Asn Arg Arg
                85   90   95

Thr Ile Glu Val Asn Arg Cys Arg Arg Arg Asn Pro Gln Lys Leu Ile
            100   105   110

Lys Val Lys Asn Asn Ile Asp Val Cys Pro Glu Cys Gly His Leu Lys

Ala Ser Gly Arg Asn Ala Ala Met Ala Ala Gln Gly Glu Pro Gln Val
20 25 30

Gln Phe Lys Leu Val Leu Val Gly Asp Gly Gly Thr Gly Lys Thr Thr
35 40 45

Phe Val Lys Arg His Leu Thr Gly Glu Phe Glu Lys Lys Tyr Val Ala
50 55 60

Thr Leu Gly Val Glu Val His Pro Leu Val Phe His Thr Asn Arg Gly
65 70 75 80

Pro Ile Lys Phe Asn Val Trp Asp Thr Ala Gly Gln Glu Lys Phe Gly
85 90 95

Gly Leu Arg Asp Gly Tyr Tyr Ile Gln Ala Gln Cys Ala Ile Ile Met
100 105 110

Phe Asp Val Thr Ser Arg Val Thr Tyr Lys Asn Val Pro Asn Trp His
115 120 125

Arg Asp Leu Val Arg Val Cys Glu Asn Ile Pro Ile Val Leu Cys Gly
130 135 140

Asn Lys Val Asp Ile Lys Asp Arg Lys Val Lys Ala Lys Ser Ile Val
145 150 155 160

Phe His Arg Lys Lys Asn Leu Gln Tyr Tyr Asp Ile Ser Ala Lys Ser
165 170 175

Asn Tyr Asn Phe Glu Lys Pro Phe Leu Trp Leu Ala Arg Lys Leu Ile
180 185 190

Gly Asp Pro Asn Leu Glu Phe Val Ala Met Pro Ala Leu Ala Pro Pro
195 200 205

Glu Val Val Met Asp Pro Ala Leu Ala Ala Gln Tyr Glu His Asp Leu
210 215 220

Glu Val Ala Gln Thr Thr Ala Leu Pro Asp Glu Asp Asp Asp Leu
225 230 235

<210> 1544
<211> 109
<212> PRT
<213> Homo sapiens

<400> 1544

Asn Leu Phe Leu Val Val Ile Phe Phe Leu Arg Gln Ser Phe
        115   120   125

<210> 1541
<211> 50
<212> PRT
<213> Homo sapiens

<400> 1541
Asn Ser Ala Arg Val Cys Ile Leu Ser Arg Asp Arg Val Ser Pro Cys
 1   5   10   15

Trp Leu Gly Trp Cys Leu Ser Leu Asp Leu Val Ile His Pro Pro Gln
             20   25   30

Pro Pro Arg Val Leu Gly Leu Gln Val Arg Ala Thr Ala Pro Gly Trp
        35   40   45

Phe Ser
    50

<210> 1542
<211> 45
<212> PRT
<213> Homo sapiens

<400> 1542
Asp Phe Phe Leu Asn Ile Ser Glu Phe Glu Gly Asn Thr Asp Arg Phe
 1   5   10   15

Leu Pro Ser Ser Leu Pro Ile Thr His Leu Ser Asp Asn Thr Leu Leu
             20   25   30

Ile Glu Glu Val Ile Arg Ile Ile Phe Lys Phe Gln Ile
        35   40   45

<210> 1543
<211> 239
<212> PRT
<213> Homo sapiens

<400> 1543
Ile Ala Leu Pro Pro Ser Phe Gln Pro Gln Ser Asp Gly Arg Gly Asp
 1   5   10   15

225 230 235 240

Asn Val Leu His Ser Ala Arg Leu Leu Gly Asp Ala Ser Val Ser Phe
245 250 255

Thr Glu Asn Cys Val Val Gly Ile Gln Ala Asn Thr Glu Arg Ile Asn
260 265 270

Lys Leu Met Asn Glu Ser Leu Met Leu Val Thr Ala Leu Asn Pro His
275 280 285

Ile Gly Tyr Asp Lys Ala Ala Lys Ile Ala Lys Thr Ala His Lys Asn
290 295 300

Gly Ser Thr Leu Lys Glu Thr Ala Ile Glu Leu Gly Tyr Leu Thr Ala
305 310 315 320

Glu Gln Phe Asp Glu Trp Val Lys Pro Lys Asp Met Leu Gly Pro Lys
325 330 335

<210> 1540
<211> 126
<212> PRT
<213> Homo sapiens

<400> 1540
Gly Val Val Lys Ser Leu Leu Phe Thr Arg Cys Asn Val Leu Val Pro
1 5 10 15

Tyr Lys Gln Gly Trp Gly Gly Glu Gly Arg Ala Lys Thr Asn Ile Glu
20 25 30

Ile Leu Lys Gln Gln Gln Ser Glu Trp Ile Leu Phe Phe Val Ile Val
35 40 45

Gly Gly Leu Lys Asn Ser Pro His Val Ile Ile Val Asn Thr Leu Leu
50 55 60

Cys Gly His Cys Asn Ile Trp Gly Val Gly Gln Gly Gly Lys Val Thr
65 70 75 80

Ile Val His Met Ser Leu Ala Ser Val Gln Ser Ser Val Gln Asn Val
85 90 95

Met Leu Phe Cys Lys Lys Arg Phe Met Ile Phe Lys Ile Asn Leu Val
100 105 110

<210> 1539
<211> 336
<212> PRT
<213> Homo sapiens

<400> 1539
His Phe Ile Phe Leu Leu Lys Asn Phe Gln Gln Ser Ser Asn Asp Thr
1   5   10   15

Phe Pro Thr Ala Met His Ile Ala Ala Ala Ile Glu Val His Glu Val
            20   25   30

Leu Leu Pro Gly Leu Gln Lys Leu His Asp Ala Leu Asp Ala Lys Ser
        35   40   45

Lys Glu Phe Ala Gln Ile Ile Lys Ile Gly Arg Thr His Thr Gln Asp
    50   55   60

Ala Val Pro Leu Thr Leu Gly Gln Glu Phe Ser Gly Tyr Val Gln Gln
65   70   75   80

Val Lys Tyr Ala Met Thr Arg Ile Lys Ala Ala Met Pro Arg Ile Tyr
                85   90   95

Glu Leu Ala Ala Gly Gly Thr Ala Val Gly Thr Gly Leu Asn Thr Arg
            100   105   110

Ile Gly Phe Ala Glu Lys Val Ala Ala Lys Val Ala Ala Leu Thr Gly
        115   120   125

Leu Pro Phe Val Thr Ala Pro Asn Lys Phe Glu Ala Leu Ala Ala His
    130   135   140

Asp Ala Leu Val Glu Leu Ser Gly Ala Met Asn Thr Thr Ala Cys Ser
145   150   155   160

Leu Met Lys Ile Ala Asn Asp Ile Arg Phe Leu Gly Ser Gly Pro Arg
                165   170   175

Ser Gly Leu Gly Glu Leu Ile Leu Pro Glu Asn Glu Pro Gly Ser Ser
            180   185   190

Ile Met Pro Gly Lys Val Asn Pro Thr Gln Cys Glu Ala Met Thr Met
        195   200   205

Val Ala Ala Gln Val Met Gly Asn His Val Ala Val Thr Val Gly Gly
    210   215   220

Ser Asn Gly His Phe Glu Leu Asn Val Phe Lys Pro Met Met Ile Lys

Ile Leu Val Lys Val Ala Asp Pro Arg Phe Ile Gly Phe Cys Ile Gln
260 265 270

Lys Gly Ala Asp Cys Gly Ala Lys Val Val Glu Lys Thr Asn Pro Thr
275 280 285

Glu Pro Val Gly Val Val Cys Arg Val Asp Gly Val Tyr Gln Val Val
290 295 300

Glu Tyr Ser Glu Ile Ser Leu Ala Thr Ala Gln Lys Arg Ser Ser Asp
305 310 315 320

Gly Arg Leu Leu Phe Asn Ala Gly Asn Ile Ala Asn His Phe Phe Thr
325 330 335

Val Pro Phe Leu Arg Asp Val Val Asn Val Tyr Glu Pro Gln Leu Gln
340 345 350

His His Val Ala Gln Lys Lys Ile Pro Tyr Val Asp Thr Gln Gly Gln
355 360 365

Leu Ile Lys Pro Asp Lys Pro Asn Gly Ile Lys Met Glu Lys Phe Val
370 375 380

Phe Asp Ile Phe Gln Phe Ala Lys Lys Phe Val Val Tyr Glu Val Leu
385 390 395 400

Arg Glu Asp Glu Phe Ser Pro Leu Lys Asn Ala Asp Ser Gln Asn Gly
405 410 415

Lys Asp Asn Pro Thr Thr Ala Arg His Ala Leu Met Ser Leu His His
420 425 430

Cys Trp Val Leu Asn Ala Gly Gly His Phe Ile Asp Glu Asn Gly Ser
435 440 445

Arg Leu Pro Ala Ile Pro Arg Ser Ala Thr Asn Gly Lys Ser Glu Thr
450 455 460

Ile Thr Ala Asp Val Asn His Asn Leu Lys Asp Ala Asn Asp Val Pro
465 470 475 480

Ile Gln Cys Glu Ile Ser Pro Leu Ile Ser Tyr Ala Gly Glu Gly Leu
485 490 495

Glu Ser Tyr Val Ala Asp Lys Glu Phe His Ala Pro Leu Ile Ile Asp
500 505 510

Glu Asn Gly Val His Glu Leu Val Lys Asn Gly Ile
515 520

<213> Homo sapiens

<400> 1538

Ser Ile Met Asn Ile Asn Asp Leu Lys Leu Thr Leu Ser Lys Ala Gly
1 5 10 15

Gln Glu His Leu Leu Arg Phe Trp Asn Glu Leu Glu Glu Ala Gln Gln
20 25 30

Val Glu Leu Tyr Ala Glu Leu Gln Ala Met Asn Phe Glu Glu Leu Asn
35 40 45

Phe Phe Phe Gln Lys Ala Ile Glu Gly Phe Asn Gln Ser Ser His Gln
50 55 60

Lys Asn Val Asp Ala Arg Met Glu Pro Val Pro Arg Glu Val Leu Gly
65 70 75 80

Ser Ala Thr Arg Asp Gln Asp Gln Leu Gln Ala Trp Glu Ser Glu Gly
85 90 95

Leu Phe Gln Ile Ser Gln Asn Lys Val Ala Val Leu Leu Leu Ala Gly
100 105 110

Gly Gln Gly Thr Arg Leu Gly Val Ala Tyr Pro Lys Gly Met Tyr Asp
115 120 125

Val Gly Leu Pro Ser Arg Lys Thr Leu Phe Gln Ile Gln Ala Glu Arg
130 135 140

Ile Leu Lys Leu Gln Gln Val Ala Glu Lys Tyr Tyr Gly Asn Lys Cys
145 150 155 160

Ile Ile Pro Trp Tyr Ile Met Thr Ser Gly Arg Thr Met Glu Ser Thr
165 170 175

Lys Glu Phe Phe Thr Lys His Lys Tyr Phe Gly Leu Lys Lys Glu Asn
180 185 190

Val Ile Phe Phe Gln Gln Gly Met Leu Pro Ala Met Ser Phe Asp Gly
195 200 205

Lys Ile Ile Leu Glu Glu Lys Asn Lys Val Ser Met Ala Pro Asp Gly
210 215 220

Asn Gly Gly Leu Tyr Arg Ala Leu Ala Ala Gln Asn Ile Val Glu Asp
225 230 235 240

Met Glu Gln Arg Gly Ile Trp Ser Ile His Val Tyr Cys Val Asp Asn
245 250 255

<400> 1537
Gly Thr Ser Arg Pro Val Ala Pro Glu Cys Thr Glu Asp Gly Gly Cys
1   5   10   15

Cys Arg Thr Val Ala Pro Ser Val Gly Ser Ser Cys His Ala Pro Ala
            20   25   30

Val Thr Gln His Ala Pro Tyr Phe Lys Gly Thr Ala Val Val Asn Gly
        35   40   45

Glu Phe Lys Asp Leu Ser Leu Asp Asp Phe Lys Gly Lys Tyr Leu Val
    50   55   60

Leu Phe Phe Tyr Pro Leu Asp Phe Thr Phe Val Cys Pro Thr Glu Ile
65   70   75   80

Val Ala Phe Ser Asp Lys Ala Asn Glu Phe His Asp Val Asn Cys Glu
                85   90   95

Val Val Ala Val Ser Val Asp Ser His Phe Ser His Leu Ala Trp Ile
            100   105   110

Asn Thr Pro Arg Lys Asn Gly Gly Leu Gly His Met Asn Ile Ala Leu
        115   120   125

Leu Ser Asp Leu Thr Lys Gln Ile Ser Arg Asp Tyr Gly Val Leu Leu
    130   135   140

Glu Gly Ser Gly Leu Ala Leu Arg Gly Leu Phe Ile Ile Asp Pro Asn
145   150   155   160

Gly Val Ile Lys His Leu Ser Val Asn Asp Leu Pro Val Gly Arg Ser
                165   170   175

Val Glu Glu Thr Leu Arg Leu Val Lys Ala Phe Gln Tyr Val Glu Thr
            180   185   190

His Gly Glu Val Cys Pro Ala Asn Trp Thr Pro Asp Ser Pro Thr Ile
        195   200   205

Lys Pro Ser Pro Ala Ala Ser Lys Glu Tyr Phe Gln Lys Val Asn Gln
    210   215   220

<210> 1538
<211> 524
<212> PRT

Ala Pro Gly Thr Arg Gly Arg Pro Gly Ala Gly Glu Leu Arg Cys Trp
50 55 60

Glu Arg Ala Val Phe Ala Asp Ser Gly Gly Xaa Gly Gly Ser Arg Pro
65 70 75 80

Gly Ser Xaa Pro Gly Met Thr Met Leu Met Glu Leu Met Gly Gln Glu
85 90 95

Trp Glu Arg Arg Ser Ala Ala Phe Cys Xaa Cys Ala Ser Ile Ala Lys
100 105 110

Phe His Ser Pro Ser Ser Ala Ala Leu Leu Leu Ala Cys Gly Ser Pro
115 120 125

Arg Tyr Asn Phe Trp Ser Cys Leu Phe Leu Leu Met Ser Phe Thr Val
130 135 140

Asn Lys Phe Asp Cys His
145 150

<210> 1536
<211> 74
<212> PRT
<213> Homo sapiens

<400> 1536
Leu Thr Tyr Ser Lys Asn Ala Pro Ile Leu Ser Asn Ser Met Pro Phe
1 5 10 15

Asp Lys Cys Ser Val Pro Met Pro Arg Pro Pro Gln Ser Arg Glu Asn
20 25 30

Ile Phe Ile Thr Pro Glu Gly Leu Leu Cys Ser Glu Tyr Ser Leu Gly
35 40 45

Val Pro Ala Ala Gly Asp Ile Asp Leu Phe Ser Val Thr Val Asp Glu
50 55 60

Ile Cys Leu Leu Tyr Thr Ile Phe Lys Asn
65 70

<210> 1537
<211> 224
<212> PRT
<213> Homo sapiens

<400> 1534
Gly Ala Ser Ala Arg Pro Pro Glu Arg Gly Pro His Pro Xaa Ala Ala
1   5   10   15

Arg Asp Pro Arg Gly Pro Pro Leu Pro Leu Ser Phe Ser Ser Ala Pro
            20   25   30

Thr Asp Thr Phe His Ser Glu Val Ser Pro Ser Pro Leu Leu Lys Ser
        35   40   45

Pro Arg Ser Pro Leu His Pro Glu Val Ser Leu Tyr Arg Asp Pro Pro
    50   55   60

Ser Phe His Pro Glu Asp Arg Pro Asn Pro Arg Ser Pro Pro Leu Ser
65   70   75   80

Xaa Ser Glu Arg Ala Ser Phe Gly Pro Lys Gln Pro Gly
                85   90

<210> 1535
<211> 150
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (75)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (83)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (106)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1535
Pro Glu Ser Leu Gly Gly Ser Pro Gly Pro Pro Arg Pro Arg Gln Ser
1   5   10   15

Cys Ser Glu Thr Ser Val Val Leu Lys Cys His Ser Pro Arg Pro Gly
            20   25   30

Arg His Arg Ser Pro Glu Ser Trp Ala Leu Gly Thr Leu Glu Ala Ala
        35   40   45

65 70 75 80

Gln Gly Gly Pro Gly Pro Gln Tyr Pro Asn Tyr Pro Gln Gly Gln Gly
85 90 95

Gln Gln Tyr Gly Gly Tyr Arg Pro Thr Gln Pro Gly Pro Pro Gln Pro
100 105 110

Pro Gln Gln Arg Pro Tyr Gly Tyr Asp Gln Gly Gln Tyr Gly Asn Tyr
115 120 125

Gln Gln
130

<210> 1533
<211> 53
<212> PRT
<213> Homo sapiens

<400> 1533
Ala Ile Leu Asp Leu Tyr Asn Pro Leu Asp Ala Ser Ala Tyr Arg Phe
1 5 10 15

Lys Met His Pro Val Val Phe Val Ala Phe Ser Ile Leu Ser Phe Leu
20 25 30

Met Cys Pro Ile Asn Lys Gln Phe Tyr Leu Lys Phe Lys Lys Lys Lys
35 40 45

Lys Lys Lys Lys Arg
50

<210> 1534
<211> 93
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (14)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (81)
<223> Xaa equals any of the naturally occurring L-amino acids

Thr Trp Lys Gly Leu Thr Ala Leu Gly Gly Leu Tyr Phe Met Phe Leu
245 250 255

Val Glu His Val Leu Thr Leu Ile Lys Gln Phe Lys Asp Lys Lys Lys
260 265 270

Lys Asn Gln Lys Lys Pro Glu Asn Asp Asp Asp Val Glu Ile Lys Lys
275 280 285

Gln Leu Ser Lys Tyr Glu Ser Gln Leu Ser Thr Asn Glu Glu Lys Val
290 295 300

Asp Thr Asp Asp Arg Thr Glu Gly Tyr Leu Arg Ala Asp Ser Gln Glu
305 310 315 320

Pro Ser His Phe Asp Ser Gln Gln Pro Ala Val Leu Glu Glu Glu Glu
325 330 335

Val Met Ile Ala His Ala His Pro Gln Glu Val Tyr Asn Glu Tyr Val
340 345 350

Pro Arg Gly Cys Lys Xaa Lys Cys His Ser His Phe His Asp Thr Leu
355 360 365

Gly Gln Ser Asp Asp Leu Ile His His His His Asp Phe Phe Lys Lys
370 375 380

Lys Lys Lys Lys Lys Lys Ile Lys Lys Lys Gln Lys Lys
385 390 395

<210> 1532
<211> 130
<212> PRT
<213> Homo sapiens

<400> 1532
Val Trp His Phe Ile Leu Phe Leu Cys Cys Trp Leu Cys Ile Leu Glu
1 5 10 15

Gly Lys Lys Leu Leu Lys Gln Thr Ser Gln Phe Phe Phe Leu Phe Ser
20 25 30

Asn Tyr Pro Val Gly Asn Ser Gln Tyr Gly Gln Gln Gln Asp Ala Tyr
35 40 45

Gln Gly Pro Pro Pro Gln Gln Gly Tyr Pro Pro Gln Gln Gln Gln Tyr
50 55 60

Pro Gly Gln Gln Gly Tyr Pro Gly Gln Gln Gln Gly Tyr Gly Pro Ser

<220>
<221> SITE
<222> (358)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1531
Ser Val Ser Ala Ser Glu Val Thr Ser Thr Val Tyr Asn Thr Val Ser
1 5 10 15

Glu Gly Thr His Phe Leu Glu Thr Ile Glu Thr Pro Arg Pro Gly Lys
20 25 30

Leu Phe Pro Lys Asp Val Ser Ser Ser Thr Pro Pro Ser Val Thr Ser
35 40 45

Lys Ser Arg Val Ser Arg Leu Ala Gly Arg Lys Thr Asn Glu Ser Val
50 55 60

Ser Glu Pro Arg Lys Gly Phe Met Tyr Ser Arg Asn Thr Asn Glu Asn
65 70 75 80

Pro Gln Glu Cys Phe Asn Ala Ser Lys Leu Leu Thr Ser His Gly Met
85 90 95

Gly Ile Gln Val Pro Leu Asn Ala Thr Glu Phe Asn Tyr Leu Cys Pro
100 105 110

Ala Ile Ile Asn Gln Ile Asp Ala Arg Ser Cys Leu Ile His Thr Ser
115 120 125

Glu Lys Lys Ala Glu Ile Pro Pro Lys Thr Tyr Ser Leu Gln Ile Ala
130 135 140

Trp Val Gly Gly Phe Ile Ala Ile Ser Ile Ile Ser Phe Leu Ser Leu
145 150 155 160

Leu Gly Val Ile Leu Val Pro Leu Met Asn Arg Val Phe Phe Lys Phe
165 170 175

Leu Leu Xaa Xaa Xaa Val Ala Leu Ala Val Gly Thr Leu Ser Gly Asp
180 185 190

Ala Phe Leu His Leu Leu Pro His Ser His Ala Ser His His His Ser
195 200 205

His Ser His Glu Glu Pro Ala Met Glu Met Lys Arg Gly Pro Leu Phe
210 215 220

Ser His Leu Ser Ser Gln Asn Ile Glu Glu Ser Ala Tyr Phe Asp Ser
225 230 235 240

210 215 220

Met Lys Lys Glu Gly Lys Leu Ile Met Gly Ile Gly His Arg Val Lys
225 230 235 240

Ser Ile Asn Asn Pro Asp Met Arg Val Gln Ile Leu Lys Asp Tyr Val
245 250 255

Arg Gln His Phe Pro Ala Thr Pro Leu Leu Asp Tyr Ala Leu Glu Val
260 265 270

Glu Lys Ile Thr Thr Ser Lys Lys Pro Asn Leu Ile Leu Asn Val Asp
275 280 285

Gly Leu Ile Gly Val Ala Phe Val Asp Met Leu Arg Asn Cys Gly Ser
290 295 300

Phe Thr Arg Glu Glu Ala Asp Glu Tyr Ile Asp Ile Gly Ala Leu Asn
305 310 315 320

Gly Ile Phe Val Leu Gly Arg Ser Met Gly Phe Ile Gly His Tyr Leu
325 330 335

Asp Gln Lys Arg Leu Lys Gln Gly Leu Tyr Arg His Pro Trp Asp Asp
340 345 350

Ile Ser Tyr Val Leu Pro Glu His Met Ser Met
355 360

<210> 1531
<211> 397
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (179)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (180)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (181)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (178)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (179)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1530
Ala His Arg Leu Leu Val His Arg Asp Val Cys His His Val Ser Ser
1   5   10   15

Glu Val Gln Phe Gly His Ala Gly Ala Cys Ala Asn Gln Ala Ser Glu
            20   25   30

Thr Ala Val Ala Lys Asn Gln Ala Leu Lys Glu Ala Gly Val Phe Val
        35   40   45

Pro Arg Ser Phe Asp Glu Leu Gly Glu Ile Ile Gln Ser Val Tyr Glu
    50   55   60

Asp Leu Val Ala Asn Gly Val Ile Val Pro Ala Gln Glu Val Pro Pro
65   70   75   80

Pro Thr Val Pro Met Asp Tyr Ser Trp Ala Arg Glu Leu Gly Leu Ile
                85   90   95

Arg Lys Pro Ala Ser Phe Met Thr Ser Ile Cys Asp Glu Arg Gly Gln
            100   105   110

Glu Leu Ile Tyr Ala Gly Met Pro Ile Thr Glu Val Phe Lys Glu Glu
        115   120   125

Met Gly Ile Gly Gly Val Leu Gly Leu Leu Trp Phe Gln Lys Arg Leu
    130   135   140

Pro Lys Tyr Ser Cys Gln Phe Ile Glu Met Cys Leu Met Val Thr Ala
145   150   155   160

Asp His Gly Pro Ala Val Ser Gly Ala His Asn Thr Ile Ile Cys Ala
                165   170   175

Arg Xaa Xaa Lys Asp Leu Val Ser Ser Leu Thr Ser Gly Leu Leu Thr
            180   185   190

Ile Gly Asp Arg Phe Gly Gly Ala Leu Asp Ala Ala Ala Lys Met Phe
        195   200   205

Ser Lys Ala Phe Asp Ser Gly Ile Ile Pro Met Glu Phe Val Asn Lys

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1               5                   10                  15
Ala Thr Phe Ser Ser Met Ser His Tyr Gly Asn Gln Thr Leu Gln Asp
            20                  25                  30
Leu Leu Thr Ser Asp Ser Leu Ser His Ser Asp Val Met Met Thr Gln
        35                  40                  45
Ser Asp Pro Leu Met Ser Gln Ala Ser Thr Ala Val Ser Ala Gln Asn
    50                  55                  60
Ser Arg Arg Asn Val Met Leu Arg Asn Asp Pro Met Met Ser Phe Ala
65                  70                  75                  80
Ala Gln Pro Asn Gln Gly Ser Leu Val Asn Gln Asn Leu Leu His His
                85                  90                  95
Gln His Gln Thr Gln Gly Ala Leu Gly Gly Ser Arg Ala Leu Ser Asn
            100                 105                 110
Ser Val Ser Asn Met Gly Leu Ser Glu Ser Ser Ser Leu Gly Ser Ala
        115                 120                 125
Lys His Gln Gln Gln Ser Pro Val Ser Gln Ser Met Gln Thr Leu Ser
    130                 135                 140
Asp Ser Leu Ser Gly Ser Ser Leu Tyr Ser Thr Ser Ala Asn Leu Pro
145                 150                 155                 160
Val Met Gly His Glu Lys Phe Pro Ser Asp Leu Asp Leu Asp Met Phe
                165                 170                 175
Asn Gly Ser Leu Glu Cys Asp Met Glu Ser Ile Ile Arg Ser Glu Leu
            180                 185                 190
Met Asp Ala Asp Gly Leu Asp Phe Asn Phe Asp Ser Leu Ile Ser Thr
        195                 200                 205
Gln Asn Val Val Gly Leu Asn Val Gly Asn Phe Thr Gly Ala Lys Gln
    210                 215                 220
Ala Ser Ser Gln Ser Trp Val Pro Gly
225                 230
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<210> 1530
<211> 363
<212> PRT
<213> Homo sapiens

Leu Leu Glu Ile Arg Gly Tyr Ser Lys Leu His Asp Asp Leu Gly Glu
100 105 110

Phe Pro Tyr Gly Leu Phe Glu Leu Val Val Ser Ile Ile Ser Phe Leu
115 120 125

Phe Phe Thr Asp Met Phe Ile Tyr Trp Ile His Arg Gly Leu His His
130 135 140

Arg Leu Val Tyr Lys Arg Leu His Lys Pro His His Ile Trp Lys Ile
145 150 155 160

Pro Thr Pro Phe Ala Ser His Ala Phe His Pro Ile Asp Gly Phe Leu
165 170 175

Gln Ser Leu Pro Tyr His Ile Tyr Pro Phe Ile Phe Pro Leu His Lys
180 185 190

Val Val Tyr Leu Ser Leu Tyr Ile Leu Val Asn Ile Trp Thr Ile Ser
195 200 205

Ile His Asp Gly Asp Phe Arg Val Pro Gln Ile Leu Gln Pro Phe Ile
210 215 220

Asn Gly Ser Ala His His Thr Asp His His Met Phe Phe Asp Tyr Asn
225 230 235 240

Tyr Gly Gln Tyr Phe Thr Leu Trp Asp Arg Ile Gly Gly Ser Phe Lys
245 250 255

Asn Pro Ser Ser Phe Glu Gly Lys Gly Pro Leu Ser Tyr Val Lys Glu
260 265 270

Met Thr Glu Gly Lys Arg Thr Ala Ile Gln Glu Met Ala Val Arg Met
275 280 285

Lys Asn Tyr Ser Met Glu Ser Leu Gln Arg Leu Asn Arg Leu Leu Pro
290 295 300

Ser Tyr Ser
305

<210> 1529
<211> 233
<212> PRT
<213> Homo sapiens

<400> 1529
Thr Pro Tyr Ala Ser Leu Pro Met Gln Thr Ile Gln Glu Asn Lys Pro

Glu Met Phe Asn Pro Tyr Tyr Gly Leu Phe Glu Tyr Ser Ala Thr Asp
165 170 175

Asn Tyr Thr Leu Gln Ile Asn Pro Asn Ser Gly Leu Cys Asn Glu Asp
180 185 190

His Leu Ser Tyr Phe Thr Phe Ile Gly Arg Val Ala Gly Leu Ala Val
195 200 205

Phe His Gly Lys Leu Leu Asp Gly Phe Phe Ile Arg Pro Phe Tyr Lys
210 215 220

Met Met Leu Gly Lys Gln Ile Thr Leu Asn Asp Met Glu Ser Val Asp
225 230 235 240

Ser Glu Tyr Tyr Asn Ser Leu Lys Trp Ile Leu Glu Asn Asp Pro Thr
245 250 255

Glu Leu Asp Leu Met Phe Cys Ile Asp Glu Glu Asn Phe Gly Gln Thr
260 265 270

Ser Thr Gly Arg
275

<210> 1528
<211> 307
<212> PRT
<213> Homo sapiens

<400> 1528
Val Met Asp Leu Val Leu Arg Val Ala Asp Tyr Tyr Phe Phe Thr Pro
1 5 10 15

Tyr Val Tyr Pro Ala Thr Trp Pro Glu Asp Asp Ile Phe Arg Gln Ala
20 25 30

Ile Ser Leu Leu Ile Val Thr Asn Val Gly Ala Tyr Ile Leu Tyr Phe
35 40 45

Phe Cys Ala Thr Leu Ser Tyr Tyr Phe Val Phe Asp His Ala Leu Met
50 55 60

Lys His Pro Gln Phe Leu Lys Asn Gln Val Arg Arg Glu Ile Lys Phe
65 70 75 80

Thr Val Gln Ala Leu Pro Trp Ile Ser Ile Leu Thr Val Ala Leu Phe
85 90 95

20 25 30

His His Gln Leu Gln Arg Met Ala Ala Ile Tyr Leu Ser Arg Gly Phe
35 40 45

Phe Ser Arg Glu Pro Ile Cys Pro Phe Glu Glu Lys Thr Lys Val Glu
50 55 60

Arg Met Val Glu Asp Tyr Leu Ala Ser Gly Tyr Gln Val Ser Arg Lys
65 70 75 80

Arg Thr Val Val Lys Asn Asp Met Leu Ser Ser Asn Arg
85 90

<210> 1527
<211> 276
<212> PRT
<213> Homo sapiens

<400> 1527
Phe Phe Ile Asp His Asn Thr Lys Thr Thr Thr Trp Glu Asp Pro Arg
1 5 10 15

Leu Lys Phe Pro Val His Met Arg Ser Lys Thr Ser Leu Asn Pro Asn
20 25 30

Asp Leu Gly Pro Leu Pro Pro Gly Trp Glu Glu Arg Ile His Leu Asp
35 40 45

Gly Arg Thr Phe Tyr Ile Asp His Asn Ser Lys Ile Thr Gln Trp Glu
50 55 60

Asp Pro Arg Leu Gln Asn Pro Ala Ile Thr Gly Pro Ala Val Pro Tyr
65 70 75 80

Ser Arg Glu Phe Lys Gln Lys Tyr Asp Tyr Phe Arg Lys Lys Leu Lys
85 90 95

Lys Pro Ala Asp Ile Pro Asn Arg Phe Glu Met Lys Leu His Arg Asn
100 105 110

Asn Ile Phe Glu Glu Ser Tyr Arg Arg Ile Met Ser Val Lys Arg Pro
115 120 125

Asp Val Leu Lys Ala Arg Leu Trp Ile Glu Phe Glu Ser Glu Lys Gly
130 135 140

Leu Asp Tyr Gly Gly Val Ala Arg Glu Trp Phe Phe Leu Leu Ser Lys
145 150 155 160

Ala Ala Gln Ala Gly Ala Ala Ala Ser Arg Val Pro Gly Leu Ser Gly
50 55 60

Ser Asn Leu Ala Pro Cys Asn Lys Gly Arg Leu Ser Ala Arg Glu Asp
65 70 75 80

Val Ser Asn Ser Lys Met Gln Ala Gln Gln Tyr Gln Gln Gln Arg Arg
85 90 95

Lys Phe Ala Ala Ala Phe Leu Ala Phe Ile Phe Ile Leu Ala Ala Val
100 105 110

Asp Thr Ala Glu Ala Gly Lys Lys Glu Lys Pro Glu Lys Lys Val Lys
115 120 125

Lys Ser Asp Cys Gly Glu Trp Gln Trp Ser Val Cys Val Pro Thr Ser
130 135 140

Gly Asp Cys Gly Leu Gly Thr Arg Glu Gly Thr Arg Thr Gly Ala Glu
145 150 155 160

Cys Lys Gln Thr Met Lys Thr Gln Arg Cys Lys Ile Pro Cys Asn Trp
165 170 175

Lys Lys Gln Phe Gly Ala Glu Cys Lys Tyr Gln Phe Gln Ala Trp Gly
180 185 190

Glu Cys Asp Leu Asn Thr Ala Leu Lys Thr Arg Thr Gly Ser Leu Lys
195 200 205

Arg Ala Leu His Asn Ala Glu Cys Gln Lys Thr Val Thr Ile Ser Lys
210 215 220

Pro Cys Gly Lys Leu Thr Lys Pro Lys Pro Gln Ala Glu Ser Lys Lys
225 230 235 240

Lys Lys Lys Glu Gly Lys Lys Gln Glu Lys Met Leu Asp
245 250

<210> 1526
<211> 93
<212> PRT
<213> Homo sapiens

<400> 1526
Pro Cys Thr Lys Arg Asn Gly Asp Cys Leu Tyr Pro Pro Arg Phe Ile
1 5 10 15

Ser Trp Pro Glu Val Ile Leu Ala Ser Arg Lys Gly Cys Thr Ser Ser

<210> 1524
<211> 111
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (107)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1524
Ile Leu Asn Val Lys Ile Ile Asp Leu Asp Ile Glu Ser Ile Ser Asp
1 5 10 15

Ser Arg Asp Thr Pro Ile Cys Leu Lys Gln Pro Lys Met Tyr Trp Leu
20 25 30

Trp Asn His Val Leu Asp Arg Phe Leu Arg Pro Val Ser Ser Asn Leu
35 40 45

Asp Thr Val Phe Lys Gly Gly Leu Leu Thr Cys Thr Val Gly Gln Ile
50 55 60

Ile Gln Ile Tyr Leu Arg Leu Gly Lys Lys Val Ile Cys Asp Phe Ala
65 70 75 80

Gly Arg Ala Phe Ala Lys Trp Ser Thr Gly Ser Lys Arg Val Phe Leu
85 90 95

Glu Arg Ala Ile Leu Ser Asn Glu Val Ser Xaa Arg Thr Leu Gly
100 105 110

<210> 1525
<211> 253
<212> PRT
<213> Homo sapiens

<400> 1525
Leu Ser Gln Arg Gln Asp Gln Val Pro Arg Leu Pro Val Gln Lys Ser
1 5 10 15

Arg Gln Glu Ser Pro Arg Ala Glu Glu Asn Pro Lys Trp Arg Glu Gly
20 25 30

Lys Lys Glu Thr Ser Glu Ser Ser Val Gln Lys Ala Gly Arg Ala Ala
35 40 45

<221> SITE
<222> (70)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (80)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1522
Ala Gly Thr Glu Pro Gly Val Lys Cys Ser Ala Lys Val His Asp Pro
1 5 10 15

Leu Arg Ser His Trp Ala Asp Leu Thr Ser Asp Ser Leu Val Val Gln
20 25 30

Met Pro Cys Ala Ala Phe Pro Glu Ala Ile Gly Gly Leu Pro Ala Ala
35 40 45

Glu Ile Tyr Ala Gly His Pro Leu Asn Xaa Cys His Ser Lys Gly Gly
50 55 60

Pro Arg Cys Ser Ser Xaa Ser Phe Thr Cys Gly Gly Val Gly Glu Xaa
65 70 75 80

Ala Val Ser Glu Met Gln Val Pro Arg Ser His Pro Gly Leu Leu Lys
85 90 95

Gly Cys Gly Ile Cys Val Ser Asp Ala Tyr Tyr Asn Met
100 105

<210> 1523
<211> 53
<212> PRT
<213> Homo sapiens

<400> 1523
Gly Thr Ser Ser Cys Leu Ser Leu Pro Glu Tyr Trp Asp Tyr Arg Leu
1 5 10 15

Phe Leu Phe Lys His Lys Ser Phe Lys Leu Val Leu Thr Leu Tyr Ser
20 25 30

Ala Leu Asp Cys Phe Ser Phe Cys Ser Val Ile Met Ser Leu Val Gly
35 40 45

Asp Ile Leu His Arg
50

<210> 1521
<211> 129
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (12)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1521
Glu Trp Ala Glu Cys Arg Gly Gln Leu Val Gln Xaa Ser Arg Pro Glu
1 5 10 15

Val Ser Ala Gly Ser Leu Leu Leu Pro Ala Pro Gln Ala Glu Asp His
20 25 30

Ser Ser Arg Ile Leu Tyr Pro Arg Pro Lys Ser Leu Leu Pro Lys Met
35 40 45

Met Asn Ala Asp Met Asp Ala Val Asp Ala Glu Asn Gln Val Glu Leu
50 55 60

Glu Glu Lys Thr Arg Leu Ile Asn Gln Val Leu Glu Leu Gln His Thr
65 70 75 80

Leu Glu Asp Leu Ser Ala Arg Val Asp Ala Val Lys Glu Glu Asn Leu
85 90 95

Lys Leu Lys Ser Glu Asn Gln Val Leu Gly Gln Tyr Ile Glu Asn Leu
100 105 110

Met Ser Ala Ser Ser Val Phe Gln Thr Thr Asp Thr Lys Ser Lys Arg
115 120 125

Lys

<210> 1522
<211> 109
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (58)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

565 570 575

Phe Cys Leu Thr Pro Met Gly Met Met Gln Phe Asn Asp Ile Leu Gln
580 585 590

Asn Leu Lys Arg Ser Lys Gln Thr Lys Glu Leu Trp Gln Arg Val Ser
595 600 605

Leu Glu Met Ala Thr Phe Ser Pro
610 615

<210> 1520
<211> 159
<212> PRT
<213> Homo sapiens

<400> 1520
Glu Gly Ser Arg Pro Pro Leu Cys Arg Ser Cys Ile Ser Ala Glu Ser
1 5 10 15

Val Phe Gln Pro Gln Leu Val Ala Pro Leu Ala Pro Leu Leu Pro Asp
20 25 30

Gly His Val Phe Val Thr Leu Glu Asn Lys Gln Pro His Thr His Phe
35 40 45

Phe Phe Ser Phe Lys Thr Val Thr Trp Lys Tyr Glu Lys Ala Arg Arg
50 55 60

Arg Ser Lys Gly Cys Phe Leu Glu Trp Leu Arg Cys Cys Pro Ala Val
65 70 75 80

Val Ile Val Phe Ser Thr Gly Leu Phe Pro Phe Ile Ser Cys Gly Thr
85 90 95

Glu Ser Leu Leu Pro Pro Leu Leu Gly Ser Pro Gly Gly Pro Trp Pro
100 105 110

Pro Phe Arg Leu Ser Lys Lys Pro Thr Thr Leu Glu Ile Phe Phe Leu
115 120 125

Glu Phe Arg Cys Phe Leu Leu Leu Pro Leu Asp Lys Lys Gln Leu Lys
130 135 140

Arg Pro Tyr Leu Arg Asp Glu Lys Asn Met His Ile Asn Ser Ile
145 150 155

290 295 300

Ser Pro Gln Tyr Leu Thr His Pro Ala His Pro Ala His Pro Met Pro
305 310 315 320

His Met Pro Arg Pro Ala Val Phe Pro Val Pro Ser Ser Ala Tyr Pro
325 330 335

Gln Gly Val His Pro Ala Phe Leu Gly Ala Gln Tyr Pro Tyr Ser Val
340 345 350

Thr Pro Pro Ser Leu Ala Ala Thr Ala Val Ser Phe Pro Val Pro Ser
355 360 365

Met Ala Pro Ile Thr Val His Pro Tyr His Thr Glu Pro Gly Leu Pro
370 375 380

Leu Pro Thr Ser Val Ala Leu Ser Ser Val His Pro Ala Ser Thr Phe
385 390 395 400

Pro Ala Ile Gln Gly Ala Ser Leu Pro Ala Leu Thr Thr Gln Pro Ser
405 410 415

Pro Leu Val Ser Gly Gly Phe Pro Pro Pro Glu Glu Glu Thr His Ser
420 425 430

Gln Pro Val Asn Pro His Ser Leu His His Leu His Ala Ala Tyr Arg
435 440 445

Val Gly Met Leu Ala Leu Glu Met Leu Gly Arg Arg Ala His Asn Asp
450 455 460

His Pro Asn Asn Phe Ser Arg Ser Pro Pro Tyr Thr Asp Asp Val Lys
465 470 475 480

Trp Leu Leu Gly Leu Ala Ala Lys Leu Gly Val Asn Tyr Val His Gln
485 490 495

Phe Cys Val Gly Ala Ala Lys Gly Val Leu Ser Pro Phe Val Leu Gln
500 505 510

Glu Ile Val Met Glu Thr Leu Gln Arg Leu Ser Pro Ala His Ala His
515 520 525

Asn His Leu Arg Ala Pro Ala Phe His Gln Leu Val Gln Arg Cys Gln
530 535 540

Gln Ala Tyr Met Gln Tyr Ile His His Arg Leu Ile His Leu Thr Pro
545 550 555 560

Ala Asp Tyr Asp Asp Phe Val Asn Ala Ile Arg Ser Ala Arg Ser Ala

20 25 30

Glu Asp Ser Ala Asp Gln Gly Arg Gly Gln Gln Gln His Phe His Phe
35 40 45

His Thr Ser Ile Phe Leu Arg Gly Pro Pro Gly Ser Ser Pro Gln Pro
50 55 60

Ala Pro Leu Arg Leu Arg Asp Trp Ala Leu Cys Leu Gly Leu His Asn
65 70 75 80

Phe Val Ser Pro Asn Trp Leu Ser Arg Thr Tyr Ser Ser His Val Ser
85 90 95

Trp Ile Thr Gly Gln Ala Met Glu Ile Gly Ser Ala Ala Leu Thr Ile
100 105 110

Leu Val Glu Cys Trp Asp Gly His Leu Thr Pro Pro Glu Val Ala Ser
115 120 125

Leu Ala Asp Arg Ala Ser Arg Ala Arg Asp Ser Asn Met Val Arg Ala
130 135 140

Ala Ala Glu Leu Ala Leu Ser Cys Leu Pro His Ala His Ala Leu Asn
145 150 155 160

Pro Asn Glu Ile Gln Arg Ala Leu Val Gln Cys Lys Glu Gln Asp Asn
165 170 175

Leu Met Leu Glu Lys Ala Cys Met Ala Val Glu Glu Ala Ala Lys Gly
180 185 190

Gly Gly Val Tyr Pro Glu Val Leu Phe Glu Val Ala His Gln Trp Phe
195 200 205

Trp Leu Tyr Glu Gln Thr Ala Gly Gly Ser Ser Thr Ala Arg Glu Gly
210 215 220

Ala Thr Ser Cys Ser Ala Ser Gly Ile Arg Ala Gly Gly Glu Ala Gly
225 230 235 240

Arg Gly Met Pro Glu Gly Arg Gly Gly Pro Gly Thr Glu Pro Val Thr
245 250 255

Val Ala Ala Ala Gln Xaa Thr Ala Ala Ala Thr Val Val Pro Val Ile
260 265 270

Ser Val Gly Ser Ser Leu Tyr Pro Gly Pro Gly Leu Gly His Gly His
275 280 285

Ser Pro Gly Leu His Pro Tyr Thr Ala Leu Gln Pro His Leu Pro Cys

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 1               5                   10                  15

Asp Asn Thr Val Arg Ala Gly Leu Thr Pro Lys Phe Ile Asp Val Pro
            20                  25                  30

Thr Leu Cys Glu Met Leu Ser Tyr Thr Pro Ser Ser Ser Lys Asp Arg
        35                  40                  45

Leu Phe Leu Pro Thr Arg Ser Gln Glu Asp Pro Tyr Leu Ser Ile Tyr
    50                  55                  60

Asp Pro Pro Val Pro Asp Phe Thr Ile Met Lys Thr Glu Val Pro Gly
65                  70                  75                      80

Ser Val Thr Glu Tyr Lys Val Leu Ala Leu Asp Ser Ala Ser Ile Leu
                85                  90                  95

Leu Met Val Gln Gly Thr Val Ile Ala Ser Thr Pro Thr Thr Gln Thr
            100                 105                 110

Pro Ile Pro Leu Gln Arg Gly Gly Val Leu Phe Ile Gly Ala Asn Glu
        115                 120                 125

Ser Val Ser Leu Lys Leu Thr Glu Pro Lys Asp Leu Leu Ile Phe Arg
    130                 135                 140

Ala Cys Cys Leu Leu
145
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<210> 1519
<211> 616
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (12)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (262)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1519
Ser Trp Gln Val Gln Gly Pro Pro Pro Arg Glu Xaa Cys Pro Ser Cys
 1               5                   10                  15

Thr Gln Ser Ala Ile Arg Gly Ser Cys Thr Leu Leu Leu Arg Ala Gly
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Leu Asp Asp
625

<210> 1517
<211> 104
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (93)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (94)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1517
Ala Pro Gln Pro Pro Pro Thr Gly Gln Ser Asp Tyr Thr Lys Ala Trp
1 5 10 15

Glu Glu Tyr Tyr Lys Lys Ile Gly Gln Gln Pro Gln Gln Pro Gly Ala
20 25 30

Pro Pro Gln Gln Asp Tyr Thr Lys Ala Trp Glu Glu Tyr Tyr Lys Lys
35 40 45

Gln Ala Gln Val Ala Thr Gly Gly Val Gln Glu Leu Pro Gln Ala Pro
50 55 60

Ser Gln Thr Thr Val Pro Pro Gly Glu Tyr Tyr Arg Gln Gln Ala Ala
65 70 75 80

Tyr Tyr Gly Gln Thr Pro Gly Pro Gly Gly Pro Gln Xaa Xaa Pro Thr
85 90 95

Gln Gln Gly Gln Gln Gln Ala Gln
100

<210> 1518
<211> 149
<212> PRT
<213> Homo sapiens

<400> 1518
His Met Thr Thr Val Ser Pro Asp Cys Val Glu Cys Met Ala Cys Ser

Arg Asp Ala Ser Leu Val Phe Lys Val Ala Glu Thr Ala Asn Glu Glu
355 360 365

Glu Val Lys Lys Met Cys Met Tyr Lys Tyr Pro Gly Met Lys Lys Lys
370 375 380

Met Gly Glu Phe Glu Leu Ala Ile Val Ala Gly Glu Phe Thr Asp Ser
385 390 395 400

Glu Ile Met Val Met Leu Gly Glu Asn Gly Thr Gly Lys Thr Thr Phe
405 410 415

Ile Arg Met Leu Ala Gly Arg Leu Lys Pro Asp Glu Gly Gly Glu Val
420 425 430

Pro Val Leu Asn Val Ser Tyr Lys Pro Gln Lys Ile Ser Pro Lys Ser
435 440 445

Thr Gly Ser Val Arg Gln Leu Leu His Glu Lys Ile Arg Asp Ala Tyr
450 455 460

Thr His Pro Gln Phe Val Thr Asp Val Met Lys Pro Leu Gln Ile Glu
465 470 475 480

Asn Ile Ile Asp Gln Glu Val Gln Thr Leu Ser Gly Gly Glu Leu Gln
485 490 495

Arg Val Ala Leu Ala Leu Cys Leu Gly Lys Pro Ala Asp Val Tyr Leu
500 505 510

Ile Asp Glu Pro Ser Ala Tyr Leu Asp Ser Glu Gln Arg Leu Met Ala
515 520 525

Ala Arg Val Val Lys Arg Phe Ile Leu His Ala Lys Lys Thr Ala Phe
530 535 540

Val Val Glu His Asp Phe Ile Met Ala Thr Tyr Leu Ala Asp Arg Val
545 550 555 560

Ile Val Phe Asp Gly Val Pro Ser Lys Asn Thr Val Ala Asn Ser Pro
565 570 575

Gln Thr Leu Leu Ala Gly Met Asn Lys Phe Leu Ser Gln Leu Glu Ile
580 585 590

Thr Phe Arg Arg Asp Pro Asn Asn Tyr Arg Pro Arg Ile Asn Lys Leu
595 600 605

Asn Ser Ile Lys Asp Val Glu Gln Lys Lys Ser Gly Asn Tyr Phe Phe
610 615 620

Thr Leu Cys Ile Gly Cys Gly Ile Cys Ile Lys Lys Cys Pro Phe Gly
85 90 95

Ala Leu Ser Ile Val Asn Leu Pro Ser Asn Leu Glu Lys Glu Thr Thr
100 105 110

His Arg Tyr Cys Ala Asn Ala Phe Lys Leu His Arg Leu Pro Ile Pro
115 120 125

Arg Pro Gly Glu Val Leu Gly Leu Val Gly Thr Asn Gly Ile Gly Lys
130 135 140

Ser Thr Ala Leu Lys Ile Leu Ala Gly Lys Gln Lys Pro Asn Leu Gly
145 150 155 160

Lys Tyr Asp Asp Pro Pro Asp Trp Gln Glu Ile Leu Thr Tyr Phe Arg
165 170 175

Gly Ser Glu Leu Gln Asn Tyr Phe Thr Lys Ile Leu Glu Asp Asp Leu
180 185 190

Lys Ala Ile Ile Lys Pro Gln Tyr Val Asp Gln Ile Pro Lys Ala Ala
195 200 205

Lys Gly Thr Val Gly Ser Ile Leu Asp Arg Lys Asp Glu Thr Lys Thr
210 215 220

Gln Ala Ile Val Cys Gln Gln Leu Asp Leu Thr His Leu Lys Glu Arg
225 230 235 240

Asn Val Glu Asp Leu Ser Gly Gly Glu Leu Gln Arg Phe Ala Cys Ala
245 250 255

Val Val Cys Ile Gln Lys Ala Asp Ile Phe Met Phe Asp Glu Pro Ser
260 265 270

Ser Tyr Leu Asp Val Lys Gln Arg Leu Lys Ala Ala Ile Thr Ile Arg
275 280 285

Ser Leu Ile Asn Pro Asp Arg Tyr Ile Ile Val Val Glu His Asp Leu
290 295 300

Ser Val Leu Asp Tyr Leu Ser Asp Phe Ile Cys Cys Leu Tyr Gly Val
305 310 315 320

Pro Ser Ala Tyr Gly Val Val Thr Met Pro Phe Ser Val Arg Glu Gly
325 330 335

Ile Asn Ile Phe Leu Asp Gly Tyr Val Pro Thr Glu Asn Leu Arg Phe
340 345 350

His Lys Ser Leu Glu Arg Ala Glu Ala Gly Asp Asn Leu Gly Ala Leu
340 345 350

Val Arg Gly Leu Lys Arg Glu Asp Leu Arg Arg Gly Leu Val Met Val
355 360 365

Lys Pro Gly Ser Ile Lys Pro His Gln Lys Val Glu Ala Gln Val Tyr
370 375 380

Ile Leu Ser Lys Glu Glu Gly Gly Arg His Lys Pro Phe Val Ser His
385 390 395 400

Phe Met Pro Val Met Phe Ser Leu Thr Trp Asp Met Ala Cys Arg Ile
405 410 415

Ile Leu Pro Pro Glu Lys Glu Leu Ala Met Pro Gly Glu Asp Leu Lys
420 425 430

Phe Asn Leu Ile Leu Arg Gln Pro Met Ile Leu Glu Lys Gly Gln Arg
435 440 445

Phe Thr Leu Arg Asp Gly Asn Arg Thr Ile Gly Thr Gly Leu Val Thr
450 455 460

Asn Thr Leu Ala Met Thr Glu Glu Glu Lys Asn Ile Lys Trp Gly
465 470 475

<210> 1516
<211> 627
<212> PRT
<213> Homo sapiens

<400> 1516
Arg Gln Glu Leu Ile Trp Pro Leu Cys Ser Pro Pro Gln Gly Asp Arg
1 5 10 15

Phe Leu Gln Lys Ser Trp Ile Phe Phe Arg Pro Val Met Ala Asp Lys
20 25 30

Leu Thr Arg Ile Ala Ile Val Asn His Asp Lys Cys Lys Pro Lys Lys
35 40 45

Cys Arg Gln Glu Cys Lys Lys Ser Cys Pro Val Val Arg Met Gly Lys
50 55 60

Leu Cys Ile Glu Val Thr Pro Gln Ser Lys Ile Ala Trp Ile Ser Glu
65 70 75 80

Leu Leu Cys Arg Gly Leu Ala Val Glu Ala Lys Lys Thr Tyr Val Arg
65 70 75 80

Asp Lys Pro His Val Asn Val Gly Thr Ile Gly His Val Asp His Gly
85 90 95

Lys Thr Thr Leu Thr Ala Ala Ile Thr Lys Ile Leu Ala Glu Gly Gly
100 105 110

Gly Ala Lys Phe Lys Lys Tyr Glu Glu Ile Asp Asn Ala Pro Glu Glu
115 120 125

Arg Ala Arg Gly Ile Thr Ile Asn Ala Ala His Val Glu Tyr Ser Thr
130 135 140

Ala Ala Arg His Tyr Ala His Thr Asp Cys Pro Gly His Ala Asp Tyr
145 150 155 160

Val Lys Asn Met Ile Thr Gly Thr Ala Pro Leu Asp Gly Cys Ile Leu
165 170 175

Val Val Ala Ala Asn Asp Gly Pro Met Pro Gln Thr Arg Glu His Leu
180 185 190

Leu Leu Ala Arg Gln Ile Gly Val Glu His Val Val Val Tyr Val Asn
195 200 205

Lys Ala Asp Ala Val Gln Asp Ser Glu Met Val Glu Leu Val Glu Leu
210 215 220

Glu Ile Arg Glu Leu Leu Thr Glu Phe Gly Tyr Lys Gly Glu Glu Thr
225 230 235 240

Pro Val Ile Val Gly Ser Ala Leu Cys Ala Leu Glu Gly Arg Asp Pro
245 250 255

Glu Leu Gly Leu Lys Ser Val Gln Lys Leu Leu Asp Ala Val Asp Thr
260 265 270

Tyr Ile Pro Val Pro Ala Arg Asp Leu Glu Lys Pro Phe Leu Leu Pro
275 280 285

Val Glu Ala Val Tyr Ser Val Pro Gly Arg Gly Thr Val Val Thr Gly
290 295 300

Thr Leu Glu Arg Gly Ile Leu Lys Lys Gly Asp Glu Cys Glu Leu Leu
305 310 315 320

Gly His Ser Lys Asn Ile Arg Thr Val Val Thr Gly Ile Glu Met Phe
325 330 335

Gln Glu Asn Ile Ala Gly Val Phe Asn Lys Ser Cys Ala Ile Ser Tyr
65 70 75 80

Thr Ser Tyr Arg Asn Ile Phe Pro Ile Trp Ala Leu Gly Arg Phe Ser
85 90 95

Gln Leu Tyr Pro Glu Arg Ala Leu Ala Gly His Pro
100 105

<210> 1514
<211> 33
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (3)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1514
Ser Trp Xaa Ser Thr Ala Val Ala Ala Ala Leu Glu Leu Val Asp Pro
1 5 10 15

Pro Gly Cys Arg Asn Ser Ala Arg Val Ser Leu Phe Val Cys Phe Phe
20 25 30

Leu

<210> 1515
<211> 479
<212> PRT
<213> Homo sapiens

<400> 1515
Gly Thr Arg Arg Pro Ser Ser Ser Val Arg Ser Gly Ser Trp Ser Arg
1 5 10 15

Leu Pro Gly Tyr Arg Gly Ala Ser Met Thr Thr Met Ala Ala Ala Thr
20 25 30

Leu Leu Arg Ala Thr Pro His Phe Ser Gly Leu Ala Ala Gly Arg Thr
35 40 45

Phe Leu Leu Gln Gly Leu Leu Arg Leu Leu Lys Ala Pro Ala Leu Pro
50 55 60

<213> Homo sapiens

<220>
<221> SITE
<222> (73)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1512
Lys Cys Pro Arg Glu Pro Leu Val His Arg Arg Phe Val Ser Thr Leu
1   5   10   15

Pro Ile Phe Thr Ala Leu Ala Leu Gln Ala Trp Gly Ser Ile Cys Ser
            20   25   30

Ser His Val Lys Ser Gly Pro Ala Phe Leu Asn Ser Val Gln Ala Asp
        35   40   45

Leu Phe Ser Cys Thr Gly Ile Ser Tyr Gln Pro Asn Ile Cys Ile Glu
    50   55   60

Gln Arg Gly Leu Cys Ala Pro Pro Xaa Met Ala Ala Met Met Ala Ala
65   70   75   80

Val Ile His Ala His Leu Gln Thr Ser Gln Ser Gly Ser Glu Met Ser
                85   90   95

Thr Asn Ile Cys Gly Arg Lys Gly Tyr Thr Asp His Pro Val Val Leu
            100   105   110

Gln Leu Tyr Arg Ala Arg Lys Gly Cys Gly Lys
        115   120

<210> 1513
<211> 108
<212> PRT
<213> Homo sapiens

<400> 1513
Ala Asp Gly Gly Trp Gly Glu Asp Phe Glu Ser Cys Glu Glu Arg Arg
1   5   10   15

Tyr Val Gln Ser Ala Gln Ser Gln Ile His Asn Thr Cys Trp Ala Met
            20   25   30

Met Gly Leu Met Ala Val Arg His Pro Asp Ile Glu Ala Gln Glu Arg
        35   40   45

Gly Val Arg Cys Leu Leu Glu Lys Gln Leu Pro Asn Gly Asp Trp Pro
    50   55   60

Ser Met Phe Pro Ser Leu Lys Tyr Leu Val Val Asn Asp Asn Gln Ile
65 70 75 80

Ser Gln Trp Ser Phe Phe Asn Glu Leu Glu Lys Leu Pro Ser Leu Arg
85 90 95

Ala Leu Ser Cys Leu Arg Asn Pro Leu Thr Lys Glu Asp Lys Glu Ala
100 105 110

Glu Thr Ala Arg Leu Leu Ile Ile Ala Ser Ile Gly Gln Leu Lys Thr
115 120 125

Leu Asn Lys Cys Glu Ile Leu Pro Glu Glu Arg Arg Arg Ala Glu Leu
130 135 140

Asp Tyr Arg Lys Ala Phe Gly Asn Glu Trp Lys Gln Ala Gly Gly His
145 150 155 160

Lys Xaa Pro Glu Lys Asn Arg Leu Ser Glu Glu Phe Leu Thr Ala His
165 170 175

Pro Arg Tyr Gln Phe Leu Cys Leu Lys Tyr Gly Ala Pro Glu Asp Trp
180 185 190

Glu Leu Lys Thr Gln Gln Pro Leu Met Leu Lys Asn Gln Leu Leu Thr
195 200 205

Leu Lys Ile Lys Tyr Pro His Gln Leu Asp Gln Lys Val Leu Glu Lys
210 215 220

Gln Leu Pro Gly Ser Met Thr Ile Gln Lys Val Lys Gly Leu Leu Ser
225 230 235 240

Arg Leu Leu Lys Val Pro Val Ser Asp Leu Leu Leu Ser Tyr Glu Ser
245 250 255

Pro Lys Lys Pro Gly Arg Glu Ile Glu Leu Glu Asn Asp Leu Lys Ser
260 265 270

Leu Gln Phe Tyr Ser Val Glu Asn Gly Asp Cys Leu Leu Val Arg Trp
275 280 285

<210> 1512
<211> 123
<212> PRT

Cys Thr Leu Gln Asp Val Gly Ser Ala Leu Ala Thr Pro Cys Ser Ser
130 135 140

Ala Arg Glu Ala His Leu Lys Tyr Thr Thr Phe Lys Ala Gly Pro Ile
145 150 155 160

Leu Glu Leu Glu Gln Trp Ile Asp Lys Tyr Thr Ser Gln Leu Pro Pro
165 170 175

Leu Thr Ala Phe Ile Leu Pro Ser Gly Gly Lys Ile Ser Ser Ala Leu
180 185 190

His Phe Cys Arg Ala Val Cys Arg Arg Ala Glu Arg Arg Val Val Pro
195 200 205

Leu Val Gln Met Gly Glu Thr Asp Ala Asn Val Ala Lys Phe Leu Asn
210 215 220

Arg Leu Ser Asp Tyr Leu Phe Thr Leu Ala Arg Tyr Ala Ala Met Lys
225 230 235 240

Glu Gly Asn Gln Glu Lys Ile Tyr Xaa Lys Asn Asp Pro Ser Ala Glu
245 250 255

Ser Glu Gly Leu
260

<210> 1511
<211> 288
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (162)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1511
Gln His Phe His Phe Arg Lys Pro Thr Asp Val Leu Gln Thr Val Lys
1 5 10 15

Leu Leu Asp Leu Ser Ser Asn Gln Leu Ile Asp Glu Asn Gln Leu Tyr
20 25 30

Leu Ile Ala His Leu Pro Arg Leu Glu Gln Leu Ile Leu Ser Asp Thr
35 40 45

Gly Ile Ser Ser Leu His Phe Pro Asp Ala Gly Ile Gly Cys Lys Thr
50 55 60

325 330 335

Lys Asn Gln Met Leu Ile Glu Glu Glu Val Gln Lys Leu Lys Arg Tyr
340 345 350

Lys Ile Glu Asn Ile Arg Arg Lys His Asn Tyr Leu Pro Phe Ile Met
355 360 365

Glu Leu Leu Lys Thr Leu Ala Glu His Gln Gln Leu Ile Pro Leu Val
370 375 380

Glu Lys Gly Lys
385

<210> 1510
<211> 260
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (249)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1510
Arg Gly Gln Val Pro Ser Ser Ser Leu Ala His Gly Cys Val Arg Pro
1 5 10 15

Gly Glu Pro Ser Trp Pro Gly Glu Pro Ser Trp Pro Ala Arg Val Leu
20 25 30

Arg Arg Arg Gln Val Leu Tyr Pro Arg Phe Gln Ser Arg Gly Pro Gln
35 40 45

Gly Val Glu Asp Gly Asp Arg Pro Gln Pro Ser Ser Lys Thr Pro Arg
50 55 60

Ile Pro Lys Ile Tyr Thr Lys Thr Gly Asp Lys Gly Phe Ser Ser Thr
65 70 75 80

Phe Thr Gly Glu Arg Arg Pro Lys Asp Asp Gln Val Phe Glu Ala Val
85 90 95

Gly Thr Thr Asp Glu Leu Ser Ser Ala Ile Gly Phe Ala Leu Glu Leu
100 105 110

Val Thr Glu Lys Gly His Thr Phe Ala Glu Glu Leu Gln Lys Ile Gln
115 120 125

50 55 60

Ser Gly Arg Cys Val Ala Arg Ala Met Thr Gly Asn Ala Gly Glu Trp
65 70 75 80

Cys Leu Met Glu Ser Asp Pro Gly Val Phe Thr Glu Leu Ile Lys Gly
85 90 95

Phe Gly Cys Arg Gly Ala Gln Val Glu Glu Ile Trp Ser Leu Glu Pro
100 105 110

Glu Asn Phe Glu Lys Leu Lys Pro Val His Gly Leu Ile Phe Leu Phe
115 120 125

Lys Trp Gln Pro Gly Glu Glu Pro Ala Gly Ser Val Val Gln Asp Ser
130 135 140

Arg Leu Asp Thr Ile Phe Phe Ala Lys Gln Val Ile Asn Asn Ala Cys
145 150 155 160

Ala Thr Gln Ala Ile Val Ser Val Leu Leu Asn Cys Thr His Gln Asp
165 170 175

Val His Leu Gly Glu Thr Leu Ser Glu Phe Lys Glu Phe Ser Gln Ser
180 185 190

Phe Asp Ala Ala Met Lys Gly Leu Ala Leu Ser Asn Ser Asp Val Ile
195 200 205

Arg Gln Val His Asn Ser Phe Ala Arg Gln Gln Met Phe Glu Phe Asp
210 215 220

Thr Xaa Thr Ser Ala Lys Glu Glu Asp Ala Phe His Phe Val Ser Tyr
225 230 235 240

Val Pro Val Asn Gly Arg Leu Tyr Glu Leu Asp Gly Leu Arg Glu Gly
245 250 255

Pro Ile Asp Leu Gly Ala Cys Asn Gln Asp Asp Trp Phe Ser Ala Val
260 265 270

Arg Pro Val Ile Glu Lys Arg Ile Gln Lys Tyr Ser Glu Gly Glu Ile
275 280 285

Arg Phe Asn Leu Met Ala Ile Val Ser Asp Arg Lys Met Ile Tyr Glu
290 295 300

Gln Lys Ile Ala Glu Leu Gln Arg Gln Leu Ala Glu Glu Pro Met Asp
305 310 315 320

Thr Asp Gln Gly Asn Ser Met Leu Ser Ala Ile Gln Ser Glu Val Ala

Tyr Arg Met Leu His Asp Asn Arg Asn Glu Pro Thr Gln Pro Arg Gln
210 215 220

Ser Gly Ser Phe Arg Val Leu Gln Gly Met Val Asp Asp Gly Ser Asp
225 230 235 240

Asp Arg Pro Ala Gly Thr Arg Ser Val Arg Ala Pro Val Thr Lys Val
245 250 255

His Gly Gly Ser Gly Gly Ala Gln Arg Met Pro Leu Cys Asp Lys Cys
260 265 270

Gly Ser Gly Ile Val Gly Ala Val Val Lys Ala Arg Asp Lys Tyr Arg
275 280 285

His Pro Glu Cys Phe Val Cys Ala Asp Cys Asn Leu Asn Leu Lys Gln
290 295 300

Lys Gly Tyr Phe Phe Ile Glu Gly Glu Leu Tyr Cys Glu Thr His Ala
305 310 315 320

Arg Ala Arg Thr Lys Pro Pro Glu Gly Tyr Asp Thr Val Thr Leu Tyr
325 330 335

Pro Lys Ala

<210> 1509
<211> 388
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (226)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1509
Leu Gly Arg Val Ser Met Ser Leu Gly Trp Leu Glu Arg Pro Pro Ala
1 5 10 15

Leu Ser Arg Ala Ala Gly Asp Gly Ala Arg Arg Leu Ser Gly Ser Arg
20 25 30

Arg Gly Asp Val Trp Leu Thr Ser Ser Ala Ala Gly Leu Leu Arg Ser
35 40 45

Val Ala Gly Gly Ser Trp Cys Gly Gly Gln Leu Arg Ala Arg Gly Gly

195 200 205

Lys Lys Pro Gln Ile Thr Thr Glu Pro His Ala Thr
210 215 220

<210> 1508
<211> 339
<212> PRT
<213> Homo sapiens

<400> 1508
Phe Gly Thr Arg Arg Ser Gly Cys Pro Ala Arg Gly His Ser Glu Pro
1 5 10 15

Gly Gly Arg Glu Glu Gly Gly Met Pro Gln Thr Val Ile Leu Pro Gly
20 25 30

Pro Ala Pro Trp Gly Phe Arg Leu Ser Gly Gly Ile Asp Phe Asn Gln
35 40 45

Pro Leu Val Ile Thr Arg Ile Thr Pro Gly Ser Lys Ala Ala Ala Ala
50 55 60

Asn Leu Cys Pro Gly Asp Val Ile Leu Ala Ile Asp Gly Phe Gly Thr
65 70 75 80

Glu Ser Met Thr His Ala Asp Ala Gln Asp Arg Ile Lys Ala Ala Ala
85 90 95

His Gln Leu Cys Leu Lys Ile Asp Arg Gly Glu Thr His Leu Trp Ser
100 105 110

Pro Gln Val Ser Glu Asp Gly Lys Ala His Pro Phe Lys Ile Asn Leu
115 120 125

Glu Ser Glu Pro Gln Glu Phe Lys Pro Ile Gly Thr Ala His Asn Arg
130 135 140

Arg Ala Gln Pro Phe Val Ala Ala Ala Asn Ile Asp Asp Lys Arg Gln
145 150 155 160

Val Val Ser Ala Ser Tyr Asn Ser Pro Ile Gly Leu Tyr Ser Thr Ser
165 170 175

Asn Ile Gln Asp Ala Leu His Gly Gln Leu Arg Gly Leu Ile Pro Ser
180 185 190

Ser Pro Gln Asn Glu Pro Thr Ala Ser Val Pro Pro Glu Ser Asp Val
195 200 205

Gln Pro Lys Xaa Xaa Leu Gln Gln Leu Arg Glu Ala Val Asp Ala Ala
405 410 415

Ala Ala Pro

<210> 1507
<211> 220
<212> PRT
<213> Homo sapiens

<400> 1507
Pro Arg Val Arg Ser Gly Arg Thr Ile Met Gln Ser Ala Met Phe Leu
1 5 10 15

Ala Val Gln His Asp Cys Arg Pro Met Asp Lys Ser Ala Gly Ser Gly
20 25 30

His Lys Ser Glu Glu Lys Arg Glu Lys Met Lys Arg Thr Leu Leu Lys
35 40 45

Asp Trp Lys Thr Arg Leu Ser Tyr Phe Leu Gln Asn Ser Ser Thr Pro
50 55 60

Gly Lys Pro Lys Thr Gly Lys Lys Ser Lys Gln Gln Ala Phe Ile Lys
65 70 75 80

Pro Ser Pro Glu Glu Ala Gln Leu Trp Ser Glu Ala Phe Asp Glu Leu
85 90 95

Leu Ala Ser Lys Tyr Gly Leu Ala Ala Phe Arg Ala Phe Leu Lys Ser
100 105 110

Glu Phe Cys Glu Glu Asn Ile Glu Phe Trp Leu Ala Cys Glu Asp Phe
115 120 125

Lys Lys Thr Lys Ser Pro Gln Lys Leu Ser Ser Lys Ala Arg Lys Ile
130 135 140

Tyr Thr Asp Phe Ile Glu Lys Glu Ala Pro Lys Glu Ile Asn Ile Asp
145 150 155 160

Phe Gln Thr Lys Thr Leu Ile Ala Gln Asn Ile Gln Glu Ala Thr Ser
165 170 175

Gly Cys Phe Thr Thr Ala Gln Lys Arg Val Tyr Ser Leu Met Glu Asn
180 185 190

Asn Ser Tyr Pro Arg Phe Leu Glu Ser Glu Phe Tyr Gln Asp Leu Cys

Tyr Ser Ser Pro Arg Gly Cys Leu Tyr Leu Lys Asp Trp His Leu Cys
130 135 140

Arg Asp Phe Pro Val Glu Asp Val Phe Thr Leu Pro Val Tyr Phe Ser
145 150 155 160

Ser Asp Trp Leu Asn Glu Phe Trp Asp Ala Leu Asp Val Asp Asp Tyr
165 170 175

Arg Phe Val Tyr Ala Gly Pro Ala Gly Ser Trp Ser Pro Phe His Ala
180 185 190

Asp Ile Phe Arg Ser Phe Ser Trp Ser Val Asn Val Cys Gly Arg Lys
195 200 205

Lys Trp Leu Leu Phe Pro Pro Gly Gln Glu Glu Ala Leu Arg Asp Arg
210 215 220

His Gly Asn Leu Pro Tyr Asp Val Thr Ser Pro Ala Leu Cys Asp Thr
225 230 235 240

His Leu His Pro Arg Asn Gln Leu Ala Gly Pro Pro Leu Glu Ile Thr
245 250 255

Gln Glu Ala Gly Glu Met Val Phe Val Pro Ser Gly Trp His His Gln
260 265 270

Val His Asn Leu Asp Asp Thr Ile Ser Ile Asn His Asn Trp Val Asn
275 280 285

Gly Phe Asn Leu Ala Asn Met Trp Arg Phe Leu Gln Gln Glu Leu Cys
290 295 300

Ala Val Gln Glu Glu Val Ser Glu Trp Arg Asp Ser Met Pro Asp Trp
305 310 315 320

His His His Cys Gln Val Ile Met Arg Ser Cys Ser Gly Ile Asn Phe
325 330 335

Glu Glu Phe Tyr His Phe Leu Lys Val Ile Ala Glu Lys Arg Leu Leu
340 345 350

Val Leu Arg Glu Ala Ala Ala Glu Asp Gly Ala Gly Leu Gly Phe Glu
355 360 365

Gln Ala Ala Phe Asp Val Gly Arg Ile Thr Glu Val Leu Ala Ser Leu
370 375 380

Val Ala His Pro Asp Phe Gln Arg Val Asp Thr Ser Ala Phe Ser Pro
385 390 395 400

Gln Ala Pro Cys His Tyr Glu Gly Lys Tyr Phe Thr Leu Gly Xaa Ser
50 55 60

Trp Leu Arg Lys Asp Cys Phe His Cys Thr Cys Leu His Pro Val Ala
65 70 75 80

Trp Ala

<210> 1506
<211> 419
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (404)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (405)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1506
Ala Arg Val Asp Arg Glu Thr Arg Ala Leu Ala Asp Ser His Phe Arg
1 5 10 15

Gly Leu Gly Val Asp Val Pro Gly Val Gly Gln Ala Pro Gly Arg Val
20 25 30

Ala Phe Val Ser Glu Pro Gly Ala Phe Ser Tyr Ala Asp Phe Val Arg
35 40 45

Gly Phe Leu Leu Pro Asn Leu Pro Cys Val Phe Ser Ser Ala Phe Thr
50 55 60

Gln Gly Trp Gly Ser Arg Arg Arg Trp Val Thr Pro Ala Gly Arg Pro
65 70 75 80

Asp Phe Asp His Leu Leu Arg Thr Tyr Gly Asp Val Val Val Pro Val
85 90 95

Ala Asn Cys Gly Val Gln Glu Tyr Asn Ser Asn Pro Lys Glu His Met
100 105 110

Thr Leu Arg Asp Tyr Ile Thr Tyr Trp Lys Glu Tyr Ile Gln Ala Gly
115 120 125

Arg
65

<210> 1504
<211> 82
<212> PRT
<213> Homo sapiens

<400> 1504
Phe Phe Val Ile Pro Ser Ser Gly Ser Ile Cys Phe Cys Ser Leu Val
1 5 10 15

Thr Val Leu Met Phe Asn Cys Cys Thr Leu Lys Pro Lys Ser Val Thr
20 25 30

Met His Thr Val Thr Lys Val Leu Gly Leu Gln Ser Cys Leu Leu Tyr
35 40 45

Lys Glu Asn Phe Lys Cys Cys Cys Lys Leu Thr Ser Tyr Thr Ile Leu
50 55 60

Asn Phe Leu Ser Ser Pro Leu Phe Leu Pro Thr Asn Gly Ile Ile Met
65 70 75 80

Leu Ala

<210> 1505
<211> 82
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (63)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1505
Glu Gly Cys Ala Ala Ala Met Ala Leu Arg Met Leu Trp Ala Gly Gln
1 5 10 15

Ala Lys Gly Ile Leu Gly Gly Trp Gly Ile Ile Cys Leu Val Met Ser
20 25 30

Leu Leu Leu Gln His Pro Gly Val Tyr Ser Lys Cys Tyr Phe Gln Ala
35 40 45

Ser Glu Gly Gly Phe Ile Trp Ala Cys Lys Asn Tyr Asp Gly Asp Val
275 280 285

Gln Ser Asp Ser Val Ala Gln Gly Tyr Gly Ser Leu Gly Met Met Thr
290 295 300

Ser Val Leu Val Cys Pro Asp Gly Lys Thr Val Glu Ala Glu Ala Ala
305 310 315 320

His Gly Thr Val Thr Arg His Tyr Arg Met Tyr Gln Lys Gly Gln Glu
325 330 335

Thr Ser Thr Asn Pro Ile Ala Ser Ile Phe Ala Trp Thr Arg Gly Leu
340 345 350

Ala His Arg Ala Lys Leu Asp Asn Asn Lys Glu Leu Ala Phe Phe Ala
355 360 365

Asn Ala Leu Glu Glu Val Ser Ile Glu Thr Ile Glu Ala Gly Phe Met
370 375 380

Thr Lys Asp Leu Ala Ala Cys Ile Lys Gly Leu Pro Asn Val Gln Arg
385 390 395 400

Ser Asp Tyr Leu Asn Thr Phe Glu Phe Met Asp Lys Leu Gly Glu Asn
405 410 415

Leu Lys Ile Lys Leu Ala Gln Ala Lys Leu
420 425

<210> 1503
<211> 65
<212> PRT
<213> Homo sapiens

<400> 1503
Phe Asn Lys Arg Lys Met Lys Tyr Ser Val Ala Tyr Ile Phe His Arg
1 5 10 15

Ala His Glu His Leu Leu Tyr Leu Leu Gly Leu Ala Lys Ile Ile Tyr
20 25 30

Ser Ala Ala Leu Pro Lys Cys Leu His Thr Lys Leu Lys Val Val Leu
35 40 45

Ile Tyr Val Ser Trp Lys Leu Phe Ile Lys Phe Lys Gly Ile Ser Phe
50 55 60

<400> 1502

Glu Ile Tyr Ser Leu Ser Arg Phe Ile Glu Val Lys Met Ser Lys Lys
1 5 10 15

Ile Ser Gly Gly Ser Val Val Glu Met Gln Gly Asp Glu Met Thr Arg
20 25 30

Ile Ile Trp Glu Leu Ile Lys Glu Lys Leu Ile Phe Pro Tyr Val Glu
35 40 45

Leu Asp Leu His Ser Tyr Asp Leu Gly Ile Glu Asn Arg Asp Ala Thr
50 55 60

Asn Asp Gln Val Thr Lys Asp Ala Ala Glu Ala Ile Lys Lys His Asn
65 70 75 80

Val Gly Val Lys Cys Ala Thr Ile Thr Pro Asp Glu Lys Arg Val Glu
85 90 95

Glu Phe Lys Leu Lys Gln Met Trp Lys Ser Pro Asn Gly Thr Ile Arg
100 105 110

Asn Ile Leu Gly Gly Thr Val Phe Arg Glu Ala Ile Ile Cys Lys Asn
115 120 125

Ile Pro Arg Leu Val Ser Gly Trp Val Lys Pro Ile Ile Ile Gly Arg
130 135 140

His Ala Tyr Gly Asp Gln Tyr Arg Ala Thr Asp Phe Val Val Pro Gly
145 150 155 160

Pro Gly Lys Val Glu Ile Thr Tyr Thr Pro Ser Asp Gly Thr Gln Lys
165 170 175

Val Thr Tyr Leu Val His Asn Phe Glu Glu Gly Gly Gly Val Ala Met
180 185 190

Gly Met Tyr Asn Gln Asp Lys Ser Ile Glu Asp Phe Ala His Ser Ser
195 200 205

Phe Gln Met Ala Leu Ser Lys Gly Trp Pro Leu Tyr Leu Ser Thr Lys
210 215 220

Asn Thr Ile Leu Lys Lys Tyr Asp Gly Arg Phe Lys Asp Ile Phe Gln
225 230 235 240

Glu Ile Tyr Asp Lys Gln Tyr Lys Ser Gln Phe Glu Ala Gln Lys Ile
245 250 255

Trp Tyr Glu His Arg Leu Ile Asp Asp Met Val Ala Gln Ala Met Lys
260 265 270

Leu His Cys Asn Thr Thr Ile Thr Gly Gln Pro Leu Leu Ser Asp Asn
100 105 110

Gln Tyr Asn Ile Asn Val Ala Ala Ser Ile Phe Ala Phe Met Thr Thr
115 120 125

Ala Cys Tyr Gly Cys Ser Leu Gly Leu Ala Leu Arg Arg Trp Arg Pro
130 135 140

<210> 1501
<211> 123
<212> PRT
<213> Homo sapiens

<400> 1501
Val Leu Pro Gly Gly Ser Leu Lys Val Gln Lys Cys Cys Pro Lys Pro
1 5 10 15

Ser Leu Asn Ile Ser Gly Asn Arg Ser Cys Ser Thr Met Gly Val Gln
20 25 30

Cys Pro Cys Leu Pro Leu Thr Gln Leu Trp Phe Ile Leu Leu Val Cys
35 40 45

Leu His Arg Pro Asp Ala Arg Val Pro Cys Leu Ile Leu His Leu Leu
50 55 60

Ser His Trp Gly Ser Leu Pro Ser Asp Ala Leu Ala Lys Ile Ala Leu
65 70 75 80

Val Cys Ser Arg Lys Glu Gly Gln Ile Pro Gly Ile Val Arg Ala Ala
85 90 95

Glu Leu Tyr Arg Ile Gly Leu Pro Phe Pro Pro Val Trp Leu Ala Leu
100 105 110

His Ser Leu Gln Ile Pro Pro Thr Ser Thr Gln
115 120

<210> 1502
<211> 426
<212> PRT
<213> Homo sapiens

<210> 1499
<211> 75
<212> PRT
<213> Homo sapiens

<400> 1499
Ser Cys Cys Leu Glu Asn Tyr Ser Phe Leu Ser Trp Ser Ala Asp Arg
1   5   10   15

Asn Ser His Thr Asn Leu Ile Gly Leu Lys Cys Ile Phe Arg Gln Gln
            20   25   30

Gly Thr Lys Gln Arg Gly Thr Gly Leu Leu Asp Trp Arg Lys Ser Leu
        35   40   45

Leu Ala Trp Trp Ala Val Phe Gln Glu Arg Pro Cys Pro Cys Ser Leu
    50   55   60

Leu Gly Thr Phe Gln Phe Arg Phe Pro Leu Val
65   70   75

<210> 1500
<211> 144
<212> PRT
<213> Homo sapiens

<400> 1500
Lys Arg Ser Trp Ala Gly Gly Arg Ala Arg Arg Lys Leu Phe Gly Gly
1   5   10   15

Leu Val Trp Ile Leu Val Ala Ser Ser Asn Val Pro Leu Pro Leu Leu
            20   25   30

Gln Gly Trp Val Met Phe Val Ser Val Thr Ala Phe Phe Phe Ser Leu
        35   40   45

Leu Phe Leu Gly Met Phe Leu Ser Gly Met Val Ala Gln Ile Asp Ala
    50   55   60

Asn Trp Asn Phe Leu Asp Phe Ala Tyr His Phe Thr Val Phe Val Phe
65   70   75   80

Tyr Phe Gly Ala Phe Leu Leu Glu Ala Ala Ala Thr Ser Leu His Asp
                85   90   95

Tyr Ile Ile Tyr Gly Met Tyr Phe Cys Met Asn Ile Ser Ser Gln Gly
180 185 190

Asp Gly Ala Cys Val Leu Leu Arg Ala Leu Glu Pro Leu Glu Gly Leu
195 200 205

Glu Thr Met Arg Gln Xaa Arg Ser Thr Leu Arg Lys Gly Thr Ala Ser
210 215 220

Arg Val Leu Lys Asp Arg Glu Leu Cys Ser Gly Pro Ser Lys Leu Cys
225 230 235 240

Gln Ala Leu Ala Ile Asn Lys Ser Phe Asp Gln Arg Asp Leu Ala Gln
245 250 255

Asp Glu Ala Val Trp Leu Glu Arg Gly Pro Leu Glu Pro Ser Glu Pro
260 265 270

Ala Val Val Ala Ala Ala Arg Val Gly Val Gly His Ala Gly Glu Trp
275 280 285

Ala Arg Lys Pro Leu Arg Phe Tyr Val Arg Gly Ser Pro Trp Val Ser
290 295 300

Val Val Asp Arg Val Ala Glu Gln Asp Thr Gln Ala
305 310 315

<210> 1498
<211> 82
<212> PRT
<213> Homo sapiens

<400> 1498
Lys Cys Asn Tyr Val Leu Ser Ala Ser Lys Phe Lys Thr Tyr Trp Asn
1 5 10 15

Val Glu Ser Val Val Thr Lys Tyr Val Arg Arg Thr Lys Gly Met Cys
20 25 30

Lys Ser Leu Met Pro Ile Ser Ser Glu Asn Leu Ser Lys Leu Thr Gly
35 40 45

Pro Ala Glu Thr Ala His Ser Ala Arg Arg Asn His Asp Ile Ala Leu
50 55 60

Pro Cys Gly Arg Ser Thr Cys Leu Glu Asn Thr Val Leu Tyr Tyr His
65 70 75 80

Tyr Gly

<210> 1497
<211> 316
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (62)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (214)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1497
Pro Trp Ser Ala Ala Ala Gly Leu Arg Ala Gly Val Arg Val Pro Arg
1 5 10 15

Ser Pro Gly Pro Ser Arg Arg Met Pro Ala Arg Ser Gly Ala Gln Phe
20 25 30

Cys Arg Arg Met Gly Gln Lys Lys Gln Arg Pro Ala Arg Ala Gly Gln
35 40 45

Pro His Ser Ser Ser Asp Ala Ala Gln Ala Pro Ala Glu Xaa Pro His
50 55 60

Ser Ser Ser Asp Ala Ala Gln Ala Pro Cys Pro Arg Glu Arg Cys Leu
65 70 75 80

Gly Pro Pro Thr Thr Pro Gly Pro Tyr Arg Ser Ile Tyr Phe Ser Ser
85 90 95

Pro Lys Gly His Leu Thr Arg Leu Gly Leu Glu Phe Phe Asp Gln Pro
100 105 110

Ala Val Pro Leu Ala Arg Ala Phe Leu Gly Gln Val Leu Val Arg Arg
115 120 125

Leu Pro Asn Gly Thr Glu Leu Arg Gly Arg Ile Val Glu Thr Glu Ala
130 135 140

Tyr Leu Gly Pro Glu Asp Glu Ala Ala His Ser Arg Gly Gly Arg Gln
145 150 155 160

Thr Pro Arg Asn Arg Gly Met Phe Met Lys Pro Gly Thr Leu Tyr Val
165 170 175

Val Phe Val Ser Asn Leu Pro Tyr Ser Met Gln Glu Pro Asp Thr Lys
325 330 335

Leu Arg Pro Leu Phe Glu Ala Cys Gly Glu Val Val Gln Ile Arg Pro
340 345 350

Ile Phe Ser Asn Arg Gly Asp Phe Arg Gly Tyr Cys Tyr Val Glu Phe
355 360 365

Lys Glu Glu Lys Ser Ala Leu Gln Ala Leu Glu Met Asp Arg Lys Ser
370 375 380

Val Glu Gly Arg Pro Met Phe Val Ser Pro Cys Val Asp Lys Ser Lys
385 390 395 400

Asn Pro Asp Phe Lys Val Phe Arg Tyr Ser Thr Ser Leu Glu Lys His
405 410 415

Lys Leu Phe Ile Ser Gly Leu Pro Phe Ser Cys Thr Lys Glu Glu Leu
420 425 430

Glu Glu Ile Cys Lys Ala His Gly Thr Val Lys Asp Leu Arg Leu Val
435 440 445

Thr Asn Arg Ala Gly Lys Pro Lys Gly Leu Ala Tyr Val Glu Tyr Glu
450 455 460

Asn Glu Ser Gln Ala Ser Gln Ala Val Met Lys Met Asp Gly Met Thr
465 470 475 480

Ile Lys Glu Asn Ile Ile Lys Val Ala Ile Ser Asn Pro Pro Gln Arg
485 490 495

Lys Val Pro Glu Lys Pro Glu Thr Arg Lys Ala Pro Gly Gly Pro Met
500 505 510

Leu Leu Pro Gln Thr Tyr Gly Ala Arg Gly Lys Gly Arg Thr Gln Leu
515 520 525

Ser Leu Leu Pro Arg Ala Leu Gln Arg Pro Ser Ala Ala Ala Pro Gln
530 535 540

Ala Glu Asn Gly Pro Ala Ala Ala Pro Ala Val Ala Ala Pro Ala Ala
545 550 555 560

Thr Glu Ala Pro Lys Met Ser Asn Ala Asp Phe Ala Lys Leu Phe Leu
565 570 575

Arg Lys

Phe Lys Gln Asp Ser Ser Lys Glu Leu Glu Glu Leu Arg Ala Ala Phe
50 55 60

Thr Arg Ala Leu Glu Tyr Leu Lys Gln Glu Val Glu Glu Arg Phe Asn
65 70 75 80

Glu Ser Gly Asp Pro Ser Cys Val Ile Met Gln Asn Trp Ala Arg Ile
85 90 95

Glu Ala Arg Leu Cys Asn Asn Met Gln Lys Ala Arg Glu Leu Trp Asp
100 105 110

Ser Ile Met Thr Arg Gly Asn Ala Lys Tyr Ala Asn Met Trp Leu Glu
115 120 125

Tyr Tyr Asn Leu Glu Arg Ala His Gly Asp Thr Gln His Cys Arg Lys
130 135 140

Ala Leu His Arg Ala Val Gln Cys Thr Ser Asp Tyr Pro Glu His Val
145 150 155 160

Cys Glu Val Leu Leu Thr Met Glu Arg Thr Glu Gly Ser Leu Glu Asp
165 170 175

Trp Asp Ile Ala Val Gln Lys Thr Glu Thr Arg Leu Ala Arg Val Asn
180 185 190

Glu Gln Arg Met Lys Ala Ala Glu Lys Glu Ala Ala Leu Val Gln Gln
195 200 205

Glu Glu Glu Lys Ala Glu Gln Arg Lys Arg Ala Arg Ala Glu Lys Lys
210 215 220

Ala Leu Lys Lys Lys Lys Lys Ile Arg Gly Pro Glu Lys Arg Gly Ala
225 230 235 240

Asp Glu Asp Asp Glu Lys Glu Trp Gly Asp Asp Glu Glu Glu Gln Pro
245 250 255

Ser Lys Arg Arg Arg Val Glu Asn Ser Ile Pro Ala Ala Gly Glu Thr
260 265 270

Gln Asn Val Glu Val Ala Ala Gly Pro Ala Gly Lys Cys Ala Ala Val
275 280 285

Asp Val Glu Pro Pro Ser Lys Gln Lys Glu Lys Ala Ala Ser Leu Lys
290 295 300

Arg Asp Met Pro Lys Val Leu His Asp Ser Ser Lys Asp Ser Ile Thr
305 310 315 320

Ala Gln Glu Leu Arg Gln Ser Cys Ala Thr Val Gln Arg Leu Gln His
195 200 205

Thr Leu Gln Gln Val Leu Asp Gln Arg Glu Glu Val Arg Gln Ser Lys
210 215 220

Gln Leu Leu Gln Leu Tyr Leu Gln Ala Leu Glu Lys Glu Gly Ser Leu
225 230 235 240

Leu Ser Lys Gln Glu Glu Ser Lys Ala Ala Phe Gly Glu Glu Val Asp
245 250 255

Ala Val Asp Thr Gly Ile Ser Arg Glu Thr Ser Ser Asp Val Ala Leu
260 265 270

Ala Ser His Ile Leu Thr Ala Leu Arg Glu Lys Gln Ala Pro Glu Leu
275 280 285

Ser Leu Ser Ser Gln Asp Leu Glu Leu Val Thr Lys Glu Asp Pro Lys
290 295 300

Ala Leu Ala Val Ala Leu Asn Trp Asp Ile Lys Lys Thr Glu Thr Val
305 310 315 320

Gln Glu Ala Cys Glu Arg Glu Leu Ala Leu Arg Leu Gln Gln Thr Gln
325 330 335

Ser Leu His Ser Leu Arg Ser Ile Ser Ala Ser Lys Ala Ser Pro Pro
340 345 350

Gly Asp Leu Gln Asn Pro Lys Arg Ala Arg Gln Asp Pro Thr
355 360 365

<210> 1496
<211> 578
<212> PRT
<213> Homo sapiens

<400> 1496
Phe Pro Phe Glu Leu Val Thr Asn Pro Asp Phe Ser Pro Thr Pro Val
1 5 10 15

Thr Phe Glu Lys Ala Leu Asn Ala Gly Phe Ile Gln Ala Thr Asp Tyr
20 25 30

Val Glu Ile Trp Gln Ala Tyr Leu Asp Tyr Leu Arg Arg Arg Val Asp
35 40 45

435 440 445

Asn Lys Tyr Arg Val Arg Lys Arg Lys Ser Ser Pro Leu Leu Trp Trp
450 455 460

Phe Leu Ile Cys Gly
465

<210> 1495
<211> 366
<212> PRT
<213> Homo sapiens

<400> 1495
Thr Asn Tyr Ile Ser Arg Gln Ala Ala Glu Gly Gly Arg Val Glu Gly
1 5 10 15

Pro Pro Leu Arg Pro Pro Ala Thr Ser Arg Arg Trp Ala Gly Pro Thr
20 25 30

Leu Trp Arg Met Glu Val Thr Gly Asp Ala Gly Val Pro Glu Ser Gly
35 40 45

Glu Ile Arg Thr Leu Lys Pro Cys Leu Leu Arg Arg Asn Tyr Ser Arg
50 55 60

Glu Gln His Gly Val Ala Ala Ser Cys Leu Glu Asp Leu Arg Ser Lys
65 70 75 80

Ala Cys Asp Ile Leu Ala Ile Asp Lys Ser Leu Thr Pro Val Thr Leu
85 90 95

Val Leu Ala Glu Asp Gly Thr Ile Val Asp Asp Asp Asp Tyr Phe Leu
100 105 110

Cys Leu Pro Ser Asn Thr Lys Phe Val Ala Leu Ala Ser Asn Glu Lys
115 120 125

Trp Ala Tyr Asn Asn Ser Asp Gly Gly Thr Ala Trp Ile Ser Gln Glu
130 135 140

Ser Phe Asp Val Asp Glu Thr Asp Ser Gly Ala Gly Leu Lys Trp Lys
145 150 155 160

Asn Val Ala Arg Gln Leu Lys Glu Asp Leu Ser Ser Ile Ile Leu Leu
165 170 175

Ser Glu Glu Asp Leu Gln Met Leu Val Asp Ala Pro Cys Ser Asp Leu
180 185 190

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                165                 170                 175

Thr Ala Leu Ser Glu Leu Val Ala Asn Ala Glu Leu Leu Glu Glu Leu
            180                 185                 190

Leu Ala Trp Ile Gln Trp Ala Glu Thr Thr Leu Ile Gln Arg Asp Gln
        195                 200                 205

Glu Pro Ile Pro Gln Asn Ile Asp Arg Val Lys Ala Leu Ile Ala Glu
    210                 215                 220

His Gln Thr Phe Met Glu Glu Met Thr Arg Lys Gln Pro Asp Val Asp
225                 230                 235                     240

Arg Val Thr Lys Thr Tyr Lys Arg Lys Asn Ile Glu Pro Thr His Ala
                245                 250                 255

Pro Phe Ile Glu Lys Ser Arg Ser Gly Gly Arg Lys Ser Leu Ser Gln
            260                 265                 270

Pro Thr Pro Pro Pro Met Pro Ile Leu Ser Gln Ser Glu Ala Lys Asn
        275                 280                 285

Pro Arg Ile Asn Gln Leu Ser Ala Arg Trp Xaa Gln Val Trp Leu Leu
    290                 295                 300

Ala Leu Glu Arg Gln Arg Lys Leu Asn Asp Ala Leu Asp Arg Leu Glu
305                 310                 315                     320

Glu Leu Lys Glu Phe Ala Asn Phe Asp Phe Asp Val Trp Arg Lys Lys
                325                 330                 335

Tyr Met Arg Trp Met Asn His Lys Lys Ser Arg Val Met Asp Phe Phe
            340                 345                 350

Arg Arg Ile Asp Lys Asp Gln Asp Gly Lys Ile Thr Arg Gln Glu Phe
        355                 360                 365

Ile Asp Gly Ile Leu Ala Ser Lys Phe Pro Thr Thr Lys Leu Glu Met
    370                 375                 380

Thr Ala Val Ala Asp Ile Phe Asp Arg Asp Gly Asp Gly Tyr Ile Asp
385                 390                 395                     400

Tyr Tyr Glu Phe Val Ala Ala Leu His Pro Asn Lys Asp Ala Tyr Arg
                405                 410                 415

Pro Thr Thr Asp Ala Asp Lys Ile Glu Asp Glu Val Thr Arg Gln Val
            420                 425                 430

Ala Gln Cys Lys Cys Ala Lys Arg Phe Gln Val Glu Gln Ile Gly Glu
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Cys His Gln Gln Glu Ala Leu Trp Xaa Leu Leu Thr Thr Glu Leu Ile
65 70 75 80

Leu Arg Glu Lys Ala Ser Arg Ser
85

<210> 1494
<211> 469
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (299)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1494
Thr Ser Trp Met His Thr Arg Phe Ser Arg Arg Asn Trp Gly Lys Arg
1 5 10 15

Thr Gly Thr Val Gln Val Leu Lys Arg Ser Gly Arg Glu Leu Ile Glu
20 25 30

Asn Ser Arg Asp Asp Thr Thr Trp Val Lys Gly Gln Leu Gln Glu Leu
35 40 45

Ser Thr Arg Trp Asp Thr Val Cys Lys Leu Ser Val Ser Lys Gln Ser
50 55 60

Arg Leu Glu Gln Ala Leu Lys Gln Ala Glu Val Phe Arg Asp Thr Val
65 70 75 80

His Met Leu Leu Glu Trp Leu Ser Glu Ala Glu Gln Thr Leu Arg Phe
85 90 95

Arg Gly Ala Leu Pro Asp Asp Thr Glu Ala Leu Gln Ser Leu Ile Asp
100 105 110

Thr His Lys Glu Phe Met Lys Lys Val Glu Glu Lys Arg Val Asp Val
115 120 125

Asn Ser Ala Val Ala Met Gly Glu Val Ile Leu Ala Val Cys His Pro
130 135 140

Asp Cys Ile Thr Thr Ile Lys His Trp Ile Thr Ile Ile Arg Ala Arg
145 150 155 160

Phe Glu Glu Val Leu Thr Trp Ala Lys Gln His Gln Gln Arg Leu Glu

290 295 300

Asp Ile Phe Thr Phe Leu Ala Thr Glu Val Glu Met Gln Gly Glu Met
305 310 315 320

Ile Asn Arg Ile Glu Lys Asn Ile Leu Ser Ser Ala Asp Tyr Val Glu
325 330 335

Arg Gly Gln Glu His Val Lys Thr Ala Leu Glu Asn Gln Lys Lys Ala
340 345 350

Arg Lys Lys Lys Val Leu Ile Ala Ile Cys Val Ser Ile Thr Val Val
355 360 365

Leu Leu Ala Val Ile Ile Gly Val Thr Val Val Gly
370 375 380

<210> 1493
<211> 88
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (10)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (29)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (73)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1493
Ala Gln Lys Glu Leu Thr Lys Ala His Xaa Leu Glu Val Arg Leu His
1 5 10 15

Thr Phe Ser Met Phe Gly Met Pro Arg Leu Pro Pro Xaa Asp Arg Arg
20 25 30

His Trp Glu Ile Gly Glu Gly Gly Asp Ser Gly Leu Thr Ile Glu Lys
35 40 45

Ser Trp Arg Glu Leu Val Pro Gly His Lys Glu Met Ser Gln Glu Leu
50 55 60

20 25 30

Gly Arg Cys Lys Gly Arg Ser Leu Trp Arg Leu Val Gly Val Leu Gly
35 40 45

Ser Ala Gly Gly Gly Arg Gly Val Ser Glu Cys Glu Arg Gly Thr Gly
50 55 60

Ile Pro Asn Leu Arg Ala Ser Arg Leu Trp Arg Arg Gly Gly Arg Ala
65 70 75 80

Gln Ala Ala Met Arg Asp Arg Thr His Glu Leu Arg Gln Gly Asp Asp
85 90 95

Ser Ser Asp Glu Glu Asp Lys Glu Arg Val Ala Leu Val Val His Pro
100 105 110

Gly Thr Ala Arg Leu Gly Ser Pro Asp Glu Glu Phe Phe His Lys Val
115 120 125

Arg Thr Ile Arg Gln Thr Ile Val Lys Leu Gly Asn Lys Val Gln Glu
130 135 140

Leu Glu Lys Gln Gln Val Thr Ile Leu Ala Thr Pro Leu Pro Glu Glu
145 150 155 160

Ser Met Lys Gln Glu Leu Gln Asn Leu Arg Asp Glu Ile Lys Gln Leu
165 170 175

Gly Arg Glu Ile Arg Leu Gln Leu Lys Ala Ile Glu Pro Gln Lys Glu
180 185 190

Glu Ala Asp Glu Asn Tyr Asn Ser Val Asn Thr Arg Met Arg Lys Thr
195 200 205

Gln His Gly Val Leu Ser Gln Gln Phe Val Glu Leu Ile Asn Lys Cys
210 215 220

Asn Ser Met Gln Ser Glu Tyr Arg Glu Lys Asn Val Glu Arg Ile Arg
225 230 235 240

Arg Gln Leu Lys Ile Thr Asn Ala Gly Met Val Ser Asp Glu Glu Leu
245 250 255

Glu Gln Met Leu Asp Ser Gly Gln Ser Glu Val Phe Val Ser Asn Ile
260 265 270

Leu Lys Asp Thr Gln Val Thr Arg Gln Ala Leu Asn Glu Ile Ser Ala
275 280 285

Arg His Ser Glu Ile Gln Gln Leu Glu Arg Ser Ile Arg Glu Leu His

Ala Gln Pro Val Pro Arg Pro Val Ser Gln Ala Arg Pro Pro Pro Asn
85 90 95

Gln Lys Lys Gly Ser Arg Thr Pro Ile Ile Ile Ile Pro Ala Ala Thr
100 105 110

Thr Ser Leu Ile Thr Met Leu Asn Ala Lys Asp Leu Leu Gln Asp Leu
115 120 125

Lys Phe Val Pro Ser Asp Glu Lys Lys Lys Gln Gly Cys Gln Arg Glu
130 135 140

Asn Glu Thr Leu Ile Gln Arg Arg Lys Asp Gln Met Gln Pro Gly Gly
145 150 155 160

Thr Ala Ile Ser Val Thr Val Pro Tyr Arg Val Val Asp Gln Pro Leu
165 170 175

Lys Leu Met Pro Gln Asp Trp Asp Arg Val Val Ala Val Phe Val Gln
180 185 190

Gly Pro Ala Trp Gln Phe Lys Gly Trp Pro Trp Leu Leu Pro Asp Gly
195 200 205

Ser Pro Val Asp Ile Phe Ala Lys Ile Lys Ala Phe His Leu Lys Tyr
210 215 220

Asp Glu Val Arg Leu Asp Pro Asn Val Gln Lys Trp Asp Val Thr Val
225 230 235 240

Leu Glu Leu Ser Tyr His Lys Arg His Leu Asp Arg Pro Val Phe Leu
245 250 255

Arg Phe Trp Glu Thr Leu Asp Arg Tyr Met Val Lys His Lys Ser His
260 265 270

Leu Arg Phe
275

<210> 1492
<211> 380
<212> PRT
<213> Homo sapiens

<400> 1492
Gly Leu Arg Leu Gly Ser Trp Ser Gly Glu Glu Lys Gly Ile Pro Thr
1 5 10 15

Cys Gly Thr Leu Gly Gly Pro Arg Gly Arg Arg Leu Pro Ile Asp Cys

115 120 125

Gly Glu Lys Asn Ser Ser Gln Ser Glu Glu Asp Asp Ile Glu Arg Arg
130 135 140

Lys Glu Val Glu Ser Ile Leu Lys Lys Asn Ser Asp Trp Ile Trp Asp
145 150 155 160

Trp Ser Ser Arg Pro Glu Asn Ile Pro Pro Lys Glu Phe Leu Phe Lys
165 170 175

His Pro Lys Arg Thr Ala Thr Leu Ser Met Arg Asn Thr Ser Val Met
180 185 190

Lys Lys Gly Gly Ile Phe Ser Ala Glu Phe Leu Lys Val Phe Leu Pro
195 200 205

Ser Leu Leu Leu Ser His Leu Leu Ala Ile Gly Leu Gly Ile Tyr Ile
210 215 220

Gly Arg Arg Leu Thr Thr Ser Thr Ser Thr Phe
225 230 235

<210> 1491
<211> 275
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (65)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1491
Lys Pro Glu Lys Lys Gly Val His Leu Asn Ser Asp Leu Pro Gln Met
1 5 10 15

Gln His Leu Trp Ile Pro Leu Cys Ala Pro Asn Ser Leu Ser Gln Leu
20 25 30

Pro Ile Thr Asp Thr Ile Arg Lys Asp Ser Lys Glu Lys Lys Lys Arg
35 40 45

Lys Ala Ser Lys Leu Thr Leu Trp Gly Thr Tyr His Gly Met Thr Leu
50 55 60

Xaa Ser Val Thr Glu Gly Ala Ser Ala Arg Lys Thr Gln Thr Pro Ala
65 70 75 80

Gln Lys Lys Asp Gly Lys Lys Arg Lys Arg Ser Arg Lys Glu Ser Tyr
35 40 45

Ser Ile Tyr Val Tyr Lys Val Leu Lys Gln Val His Pro Asp Thr Gly
50 55 60

Ile Ser Ser Lys Ala Met Gly Ile Met Asn Ser Phe Val Asn Asp Ile
65 70 75 80

Phe Glu Arg Ile Xaa Gly Glu Ala Ser Arg Leu Ala His Tyr Asn Lys
85 90 95

Arg Ser Thr Ile Thr Ser Arg Glu Ile Gln Thr Ala Val Arg Leu Leu
100 105 110

Leu Pro Gly Glu Leu Ala Lys His Ala Val Ser Glu Gly Thr Lys Ala
115 120 125

Val Thr Lys Tyr Thr Ser Ser Lys
130 135

<210> 1490
<211> 235
<212> PRT
<213> Homo sapiens

<400> 1490
Pro Leu Ser Pro Gly Ala Gln Leu Gly Arg Gly Ala Pro Thr Ser Ala
1 5 10 15

Phe Pro Pro Pro Ala Ala Glu Ala His Pro Ala Ala Arg Arg Gly Leu
20 25 30

Arg Ser Pro Gln Leu Pro Ser Gly Ala Met Ser Gln Asn Gly Ala Pro
35 40 45

Gly Met Gln Glu Glu Ser Leu Gln Gly Ser Trp Val Glu Leu His Phe
50 55 60

Ser Asn Asn Gly Asn Gly Gly Ser Val Pro Ala Ser Val Ser Ile Tyr
65 70 75 80

Asn Gly Asp Met Glu Lys Ile Leu Leu Asp Ala Gln His Glu Ser Gly
85 90 95

Arg Ser Ser Ser Lys Ser Ser His Cys Asp Ser Pro Pro Arg Ser Gln
100 105 110

Thr Pro Gln Asp Thr Asn Arg Ala Ser Glu Thr Asp Thr His Ser Ile

Ile Gln Gln Ser Ile Phe Phe Phe Phe Leu Ser Pro Asn Leu Asn Arg
65 70 75 80

Ser Lys Met Cys Ser Gly Ile Pro Gly Asn Arg Cys Val Cys Lys Val
85 90 95

Lys Asn Arg Leu Phe Arg Asn Ser Leu Phe Arg Tyr Leu His Pro Ala
100 105 110

Ser His Val Lys Tyr Leu Ser Leu Lys Gly Leu Arg Cys Thr Ser Phe
115 120 125

Ile Ser Tyr Phe Ser
130

<210> 1488
<211> 42
<212> PRT
<213> Homo sapiens

<400> 1488
Gln Arg Cys Pro Arg Cys Gly His Glu Gly Met Ala Tyr His Thr Arg
1 5 10 15

Gln Met Arg Ser Ala Asp Glu Gly Gln Thr Val Phe Tyr Thr Cys Thr
20 25 30

Asn Cys Lys Phe Gln Glu Lys Glu Asp Ser
35 40

<210> 1489
<211> 136
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (85)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1489
His Glu Ala Ala Phe Val Leu Cys Leu Thr Met Pro Glu Pro Ala Lys
1 5 10 15

Ser Ala Pro Ala Pro Lys Lys Gly Ser Lys Lys Ala Val Thr Lys Ala
20 25 30

Asn Asn Trp Phe Ile Asn Ala Arg Arg Arg Ile Val Gln Pro Met Ile
145 150 155 160

Asp Gln Ser Asn Arg Ala Gly Phe Leu Leu Asp Pro Ser Val Ser Gln
165 170 175

Gly Ala Ala Tyr Ser Pro Xaa Gly Gln Pro Met Gly Ser Phe Val Leu
180 185 190

Asp Gly Xaa Gln His Met Gly Ile Arg Pro Ala Gly Leu Gln Ser Met
195 200 205

Pro Gly Asp Tyr Val Ser Gln Gly Gly Pro Met Gly Met Ser Xaa Ala
210 215 220

Gln Pro Ser Tyr Thr Pro Pro Gln Met Thr Pro His Pro Thr Gln Leu
225 230 235 240

Arg His Gly Pro Pro Met His Ser Tyr Leu Pro Ser His Pro His His
245 250 255

Pro Ala Met Met Met His Gly Gly Pro Pro Thr His Pro Gly Met Thr
260 265 270

Met Ser Ala Gln Ser Pro Thr Met Leu Asn Ser Val Asp Pro Asn Val
275 280 285

Gly Gly Gln Val Met Asp Ile His Ala Gln
290 295

<210> 1487
<211> 133
<212> PRT
<213> Homo sapiens

<400> 1487
His Gln Ala Ile Lys Pro Gly Tyr Ser Ala Glu Asn Val Ala His Thr
1 5 10 15

Asp His Thr Leu Gly Cys Val Thr Ile Val Trp Cys Thr Cys Trp Lys
20 25 30

Asn Ser Ser Met Leu Leu Gly Asp Ile Ile Ser Val Gly Asn Met Pro
35 40 45

Leu Thr Asp Phe Phe Phe Phe Leu Phe Ala Val Gly Leu Gly Gln Leu
50 55 60

<211> 298
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (52)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (183)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (195)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (223)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1486
Arg Gly Lys Cys Pro Ser Thr Ser Ser Leu Met Lys Glu Thr Ala Ala
1 5 10 15

Pro Ser Gln Ile Met Lys Asn Phe Gln Ala Pro Pro Gln Ile Ser Leu
20 25 30

Thr Ile Thr Leu Leu Leu Gly Glu Thr Thr Met Met Gln Pro Gln Pro
35 40 45

Thr Gln Gln Xaa Thr Pro Gly Pro Ser Ser Gly Gly His Ala Ser Gln
50 55 60

Ser Gly Asp Asn Ser Ser Glu Gln Gly Asp Gly Leu Asp Asn Ser Val
65 70 75 80

Ala Ser Pro Gly Thr Val Thr Asp Asp Asp Pro Asp Lys Asp Lys Lys
85 90 95

Arg Gln Lys Lys Arg Gly Ile Phe Pro Lys Val Ala Thr Asn Ile Met
100 105 110

Arg Ala Trp Leu Phe Gln His Leu Thr His Pro Tyr Pro Ser Glu Glu
115 120 125

Gln Lys Lys Gln Leu Ala Gln Asp Thr Gly Leu Thr Ile Leu Gln Val
130 135 140

Ile Ala Gly Glu Ala Ser Arg Leu Ala His Tyr Asn Lys Arg Ser Thr
100 105 110

Ile Thr Ser Arg Glu Ile Gln Thr Ala Val Arg Leu Leu Leu Pro Gly
115 120 125

Glu Leu Ala Lys His Ala Val Ser Glu Gly Thr Lys Ala Val Thr Lys
130 135 140

Tyr Thr Ser Ser Lys
145

<210> 1485
<211> 142
<212> PRT
<213> Homo sapiens

<400> 1485
Asp Pro Arg Val Arg Thr Phe Pro Pro Thr Leu Leu Leu Leu Leu His
1 5 10 15

Ser Arg Leu Ser Leu Cys Leu Ser His Phe Leu Pro Ser Pro His Pro
20 25 30

Pro Gln Cys Thr Glu Glu Gly Asn Arg Val Gln Thr His Ala Ala Pro
35 40 45

Val Leu Arg Arg Glu Gly Lys Pro Arg Arg Glu Ala Ala Met Asn Val
50 55 60

Asp His Glu Val Asn Leu Leu Val Glu Glu Ile His Arg Leu Gly Ser
65 70 75 80

Lys Asn Ala Asp Gly Lys Leu Ser Val Lys Phe Gly Val Leu Phe Arg
85 90 95

Asp Asp Lys Cys Ala Asn Leu Phe Glu Ala Leu Val Gly Thr Leu Lys
100 105 110

Ala Ala Lys Arg Arg Lys Ile Val Thr Tyr Pro Gly Glu Leu Leu Leu
115 120 125

Gln Gly Val His Asp Asp Val Asp Ile Ile Leu Leu Gln Asp
130 135 140

<210> 1486

245 250 255

Asn Thr Val Thr Tyr Thr Ser Leu Lys Thr Lys Leu Ser Asn Val Ile
260 265 270

Asn Ser Ala Thr Asp Thr Glu Glu Val His Ile Met Leu Asp Gly Leu
275 280 285

Leu Pro Pro Asp Thr Tyr Phe Arg Phe Asn Pro Val Met Cys Glu Asn
290 295 300

Ile Pro Leu Asp Glu Ser Arg Asn Glu Lys Leu Asp Gln Leu Gln Leu
305 310 315 320

Glu Gly Leu Lys Tyr Ile Glu Arg Asn Glu Gln Lys Met Lys Lys Val
325 330 335

Ala Lys Ile Leu Ser Gln Glu Lys Thr Thr Leu Gln Lys Ile Asn Asp
340 345 350

Trp Ile Lys Leu Lys Thr Asp Met Tyr Glu Gly Leu Pro Phe Phe Ser
355 360 365

Lys Leu
370

<210> 1484
<211> 149
<212> PRT
<213> Homo sapiens

<400> 1484
Asp Ser Thr Gly Pro Glu Phe Pro Gly Arg Pro Thr Arg Pro Asn Ser
1 5 10 15

Val Leu Thr Ile Asn Ala Thr Met Pro Glu Pro Thr Lys Ser Ala Pro
20 25 30

Ala Pro Lys Lys Gly Ser Lys Lys Ala Val Thr Lys Ala Gln Lys Lys
35 40 45

Asp Gly Lys Lys Arg Lys Arg Ser Arg Lys Glu Ser Tyr Ser Val Tyr
50 55 60

Val Tyr Lys Val Leu Lys Gln Val His Pro Asp Thr Gly Ile Ser Ser
65 70 75 80

Lys Ala Met Gly Ile Met Asn Ser Phe Val Asn Asp Ile Phe Glu Arg
85 90 95

<211> 370
<212> PRT
<213> Homo sapiens

<400> 1483
Gly Gln Ile Lys Asp Glu Thr Leu Gln Ala Ala Val Arg Glu Ile Leu
1 5 10 15

Ala Leu Ile Gly Tyr Val Asp Pro Val Lys Gly Arg Gly Ile Arg Ile
20 25 30

Leu Ser Ile Asp Gly Gly Gly Thr Arg Gly Val Val Ala Leu Gln Thr
35 40 45

Leu Arg Lys Leu Val Glu Leu Thr Gln Lys Pro Val His Gln Leu Phe
50 55 60

Asp Tyr Ile Cys Gly Val Ser Thr Gly Ala Ile Leu Ala Phe Met Leu
65 70 75 80

Gly Leu Phe His Met Pro Leu Asp Glu Cys Glu Glu Leu Tyr Arg Lys
85 90 95

Leu Gly Ser Asp Val Phe Ser Gln Asn Val Ile Val Gly Thr Val Lys
100 105 110

Met Ser Trp Ser His Ala Phe Tyr Asp Ser Gln Thr Trp Glu Asn Ile
115 120 125

Leu Lys Asp Arg Met Gly Ser Ala Leu Met Ile Glu Thr Ala Arg Asn
130 135 140

Pro Thr Cys Pro Lys Val Ala Ala Val Ser Thr Ile Val Asn Arg Gly
145 150 155 160

Ile Thr Pro Lys Ala Phe Val Phe Arg Asn Tyr Gly His Phe Pro Gly
165 170 175

Ile Asn Ser His Tyr Leu Gly Gly Cys Gln Tyr Lys Met Trp Gln Ala
180 185 190

Ile Arg Ala Ser Ser Ala Ala Pro Gly Tyr Phe Ala Glu Tyr Ala Leu
195 200 205

Gly Asn Asp Leu His Gln Asp Gly Gly Leu Leu Leu Asn Asn Pro Ser
210 215 220

Ala Leu Ala Met His Glu Cys Lys Cys Leu Trp Pro Asp Val Pro Leu
225 230 235 240

Glu Cys Ile Val Ser Leu Gly Thr Gly Arg Tyr Glu Ser Asp Val Arg

<210> 1482
<211> 205
<212> PRT
<213> Homo sapiens

<400> 1482

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Asp Pro Arg Val Arg Ala Ala Arg Thr Ala Phe Gly Ala Val Cys Arg
  1               5                  10                  15

Arg Leu Trp Gln Gly Leu Gly Asn Phe Ser Val Asn Thr Ser Lys Gly
            20                  25                  30

Asn Thr Ala Lys Asn Gly Gly Leu Leu Leu Ser Thr Asn Met Lys Trp
        35                  40                  45

Val Gln Phe Ser Asn Leu His Val Asp Val Pro Lys Asp Leu Thr Lys
    50                  55                  60

Pro Val Val Thr Ile Ser Asp Glu Pro Asp Ile Leu Tyr Lys Arg Leu
 65                  70                  75                  80

Ser Val Leu Val Lys Gly His Asp Lys Ala Val Leu Asp Ser Tyr Glu
                 85                  90                  95

Tyr Phe Ala Val Leu Ala Ala Lys Glu Leu Gly Ile Ser Ile Lys Val
            100                 105                 110

His Glu Pro Pro Arg Lys Ile Glu Arg Phe Thr Leu Leu Gln Ser Val
        115                 120                 125

His Ile Tyr Lys Lys His Arg Val Gln Tyr Glu Met Arg Thr Leu Tyr
    130                 135                 140

Arg Cys Leu Glu Leu Glu His Leu Thr Gly Ser Thr Ala Asp Val Tyr
145                 150                 155                 160

Leu Glu Tyr Ile Gln Arg Asn Leu Pro Glu Gly Val Ala Met Glu Val
                165                 170                 175

Thr Lys Thr Gln Leu Glu Gln Leu Pro Glu His Ile Lys Glu Pro Ile
            180                 185                 190

Trp Glu Thr Leu Ser Glu Glu Lys Glu Glu Ser Lys Ser
        195                 200                 205
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<210> 1483

Asp Thr Leu Asn Pro Lys Trp Asn Phe Asn Cys Gln Phe Phe Ile Lys
115 120 125

Asp Leu Tyr Gln Asp Val Leu Cys Leu Thr Leu Phe Asp Arg Asp Gln
130 135 140

Phe Ser Pro Asp Asp Phe Leu Gly Arg Thr Glu Ile Pro Val Ala Lys
145 150 155 160

Ile Arg Thr Glu Gln Glu Ser Lys Gly Pro Met Thr Arg Arg Leu Leu
165 170 175

Leu His Glu Val Pro Thr Gly Glu Val Trp Val Arg Phe Asp Leu Gln
180 185 190

Leu Phe Glu Gln Lys Thr Leu Leu
195 200

<210> 1481
<211> 109
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (36)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1481
Gln Leu Leu Leu Leu Pro Pro Lys Ala Pro Arg Asn Pro Phe Leu Pro
1 5 10 15

Cys Pro Gly Ser Arg Thr Pro Gly Tyr Ile Trp Lys Val Glu Met Trp
20 25 30

Gly Ser Cys Xaa Leu Glu Tyr Tyr Val Ser Pro Pro Ser Ala Val Phe
35 40 45

Ser Glu His Val Cys Cys Pro Trp Trp Glu Arg Gly His Cys Ala Val
50 55 60

Val His Arg Cys Leu Ser Phe Thr Val Gly Leu Ser Val Cys Leu Ser
65 70 75 80

Phe Leu Ser Ala Ala Gln Met Glu Asn Asn Tyr Leu Leu His Trp Arg
85 90 95

Glu Arg Lys Ser Leu Arg Ile Pro Lys Gly Thr Leu Ala
100 105

Leu Val Arg Lys Gly Met Pro Phe Arg Gln Ala His Glu Ala Ser Gly
450 455 460

Lys Ala Val Phe Met Ala Glu Thr Lys Gly Val Ala Leu Asn Gln Leu
465 470 475 480

Ser Leu Gln Glu Leu Gln Thr Ile Ser Pro Leu Phe Ser Gly Asp Val
485 490 495

Ile Cys Val Trp Asp Tyr Gly His Ser Val Glu Gln Tyr Gly Ala Leu
500 505 510

Gly Ala Leu Arg Ala Pro Ala Ser Thr Gly Arg Ser Ala Arg Cys Gly
515 520 525

Arg Tyr Cys Arg His Ser Arg Pro Arg Ser Ser His Thr Cys Pro Leu
530 535 540

Ile Lys Trp Ala Arg Glu Glu Lys Lys Lys Xaa Lys Lys Lys Phe
545 550 555

<210> 1480
<211> 200
<212> PRT
<213> Homo sapiens

<400> 1480
Ser Leu Gly Glu Leu Pro Thr Asp Pro Ser Ser Asp Glu Pro Val Phe
1 5 10 15

His Ile Ser His Ile Asp Arg Val Tyr Thr Leu Arg Thr Asp Asn Ile
20 25 30

Asn Glu Arg Thr Thr Trp Val Gln Lys Ile Lys Ala Ala Ser Glu Gln
35 40 45

Tyr Ile Asp Thr Glu Lys Lys Lys Arg Glu Lys Ala Tyr Gln Ala Arg
50 55 60

Ser Gln Lys Thr Ser Gly Ile Gly Arg Leu Met Val His Val Ile Glu
65 70 75 80

Ala Thr Glu Leu Lys Ala Cys Lys Pro Asn Gly Lys Ser Asn Pro Tyr
85 90 95

Cys Glu Ile Ser Met Gly Ser Gln Ser Tyr Thr Thr Arg Thr Ile Gln
100 105 110

Gly Lys Leu His Thr Gly Arg Ser Arg Asn Asp Gln Val Val Thr Asp
180 185 190

Leu Arg Leu Trp Met Arg Gln Thr Cys Ser Thr Leu Ser Gly Leu Leu
195 200 205

Trp Glu Leu Ile Arg Thr Met Val Asp Arg Ala Glu Ala Glu Arg Asp
210 215 220

Val Leu Phe Pro Gly Tyr Thr His Leu Gln Arg Ala Gln Pro Ile Arg
225 230 235 240

Trp Ser His Trp Ile Leu Ser His Ala Val Ala Leu Thr Arg Asp Ser
245 250 255

Glu Arg Leu Leu Glu Val Arg Lys Arg Ile Asn Val Leu Pro Leu Gly
260 265 270

Ser Gly Ala Ile Ala Gly Asn Pro Leu Gly Val Asp Arg Glu Leu Leu
275 280 285

Arg Ala Glu Leu Asn Phe Gly Ala Ile Thr Leu Asn Ser Met Asp Ala
290 295 300

Thr Ser Glu Arg Asp Phe Val Ala Glu Phe Leu Phe Trp Ala Ser Leu
305 310 315 320

Cys Met Thr His Leu Ser Arg Met Ala Glu Asp Leu Ile Leu Tyr Cys
325 330 335

Thr Lys Glu Phe Ser Phe Val Gln Leu Ser Asp Ala Tyr Ser Thr Gly
340 345 350

Ser Ser Leu Met Pro Gln Lys Lys Asn Pro Asp Ser Leu Glu Leu Ile
355 360 365

Arg Ser Lys Ala Gly Arg Val Phe Gly Arg Cys Ala Gly Leu Leu Met
370 375 380

Thr Leu Lys Gly Leu Pro Ser Thr Tyr Asn Lys Asp Leu Gln Glu Asp
385 390 395 400

Lys Glu Ala Val Phe Glu Val Ser Asp Thr Met Ser Ala Val Leu Gln
405 410 415

Val Ala Thr Gly Val Ile Ser Thr Leu Gln Ile His Gln Glu Asn Met
420 425 430

Gly Gln Ala Leu Ser Pro Asp Met Leu Ala Thr Asp Leu Ala Tyr Tyr
435 440 445

Arg Ser Ala His Leu Ser Leu Pro Lys Cys Trp Asp Tyr Arg Arg Asn
35 40 45

Thr Arg Ala Trp Pro Val Leu
50 55

<210> 1479
<211> 559
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (555)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1479
Ala Arg Ala Asp Gly Arg Asp Gly Arg Gly Gly Arg Arg Ala Pro Trp
1 5 10 15

Arg Ala Leu Thr Ser Ala Ser Pro Arg Ala Ala Leu Pro Gln Ala Gln
20 25 30

Cys Pro Glu Leu Gly Ala Ser Pro Ala Arg Gly Thr Leu Leu Ala Lys
35 40 45

Glu Val Val Ser Pro Val Leu Ser Ser Arg Pro Gly Gly Pro Lys Leu
50 55 60

Pro Asp Asp Glu Glu Pro Pro Asn Met Ala Ser Glu Ser Gly Lys Leu
65 70 75 80

Trp Gly Gly Arg Phe Val Gly Ala Val Asp Pro Ile Met Glu Lys Phe
85 90 95

Asn Ala Ser Ile Ala Tyr Asp Arg His Leu Trp Glu Val Asp Val Gln
100 105 110

Gly Ser Lys Ala Tyr Ser Arg Gly Leu Glu Lys Ala Gly Leu Leu Thr
115 120 125

Lys Ala Glu Met Asp Gln Ile Leu His Gly Leu Asp Lys Val Ala Glu
130 135 140

Glu Trp Ala Gln Gly Thr Phe Lys Leu Asn Ser Asn Asp Glu Asp Ile
145 150 155 160

His Thr Ala Asn Glu Arg Arg Leu Lys Glu Leu Ile Gly Ala Thr Ala
165 170 175

Val Lys Ser Lys Ser Met Asp Ala Ile Arg Ser Leu Ala Ser Val Ser
    210   215   220

Tyr Ala Ala Val Asp Phe Phe Arg Pro Ser Ala Gln Arg Leu Ile Glu
225   230   235   240

Glu Lys Gly Ala Val Asp Ala Leu Ala Ala Ala Leu Ala His Ile Ser
                245   250   255

Gly Ala Ser Ser Phe Glu Pro Arg Ser Leu Ile Thr Ser Asp Lys Gly
            260   265   270

Phe Val Thr Met Thr Leu Glu Ser Leu Glu Glu Ile Gln Asp Val Ser
        275   280   285

Cys Ala Trp Lys Glu Leu Asn Arg Lys Leu Ser Ser Asn Ala Val Ser
    290   295   300

Gln Ile Thr Arg Met Cys Leu Leu Lys Gly Asn Met Gly Val Cys Phe
305   310   315   320

Asp Val Pro Thr Thr Glu Ser Glu Arg Leu Gln Ala Glu Trp His Asp
                325   330   335

Ser Asp Trp Ile Leu Ser Val Pro Ala Lys Leu Pro Glu Ile Glu Glu
            340   345   350

Tyr Tyr Asp Gly Asn Thr Ser Ser Asn Ser Arg Gln Arg Ser Gly Trp
        355   360   365

Ser Xaa Gly Arg Ser Xaa Arg Ser Ala Xaa Xaa Gly Gly Arg Ser Gly
    370   375   380

Gly Gly Gln
385

<210> 1478
<211> 55
<212> PRT
<213> Homo sapiens

<400> 1478
Thr Gly Ala Cys His His Ala Gln Leu Asn Phe Val Phe Leu Val Glu
  1   5   10   15

Thr Gly Phe His His Val Gly Gln Asp Gly Leu Asn Leu Leu Thr Leu
            20   25   30

<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (378)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (379)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1477

Asp Ser Glu Asp Asn Pro Gln Thr Leu Leu Phe Ser Ala Thr Cys Pro
1 5 10 15

Gln Trp Val Tyr Lys Val Ala Lys Lys Tyr Met Lys Ser Arg Tyr Glu
20 25 30

Gln Val Xaa Leu Val Gly Lys Met Thr Gln Lys Ala Ala Thr Thr Val
35 40 45

Glu His Leu Ala Ile Gln Cys His Trp Ser Gln Arg Pro Ala Val Ile
50 55 60

Gly Asp Val Leu Gln Val Tyr Ser Gly Ser Glu Gly Arg Ala Ile Ile
65 70 75 80

Phe Cys Glu Thr Lys Lys Asn Val Thr Glu Met Ala Met Asn Pro His
85 90 95

Ile Lys Gln Asn Ala Gln Cys Leu His Gly Asp Ile Ala Gln Ser Gln
100 105 110

Arg Glu Ile Thr Leu Lys Gly Phe Arg Glu Gly Ser Phe Lys Val Leu
115 120 125

Val Ala Thr Asn Val Ala Ala Arg Gly Leu Asp Ile Pro Glu Val Asp
130 135 140

Leu Val Ile Gln Ser Ser Pro Pro Gln Asp Val Glu Ser Tyr Ile His
145 150 155 160

Arg Ser Gly Arg Thr Gly Arg Ala Gly Arg Thr Gly Ile Cys Ile Cys
165 170 175

Phe Tyr Gln Pro Arg Glu Arg Gly Gln Leu Arg Tyr Val Glu Gln Lys
180 185 190

Ala Gly Ile Thr Phe Lys Arg Val Gly Val Pro Ser Thr Met Asp Leu
195 200 205

Lys Ser Lys Asp Val Ile Asn Phe Thr Ala Glu Lys Leu Ser Val Asp
50 55 60

Glu Val Ser Gln Leu Val Ile Ser Pro Leu Cys Gly Ala Ile Ser Leu
65 70 75 80

Phe Val Gly Thr Thr Arg Asn Asn Phe Glu Gly Lys Lys Val Ile Ser
85 90 95

Leu Glu Tyr Glu Ala Tyr Leu Pro Met Ala Glu Asn Glu Val Arg Lys
100 105 110

Ile Cys Ser Asp Ile Arg Gln Lys Trp Pro Val Lys His Ile Ala Val
115 120 125

Phe His Arg Leu Gly Leu Val Pro Val Ser Glu Ala Ser Ile Ile Ile
130 135 140

Ala Val Ser Ser Ala His Arg Ala Ala Ser Leu Glu Ala Val Ser Tyr
145 150 155 160

Ala Ile Asp Thr Leu Lys Ala Lys Val Pro Ile Trp Lys Lys Glu Ile
165 170 175

Tyr Glu Glu Ser Ser Thr Trp Lys Gly Asn Lys Glu Cys Phe Trp Ala
180 185 190

Ser Asn Ser
195

<210> 1477
<211> 387
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (35)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (370)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (374)

165 170 175

Glu Ala Leu Lys Gln Leu Tyr Gln Cys Asp Ala Ile Asp Arg Ser Gly
180 185 190

His Val Thr Arg Leu Gly Leu Ser Met Val Glu Phe Pro Leu Pro Pro
195 200 205

His Leu Thr Cys Ala Val Ile Lys Ala Ala Ser Leu Asp Cys Glu Asp
210 215 220

Leu Leu Leu Pro Ile Ala Ala Met Leu Ser Val Glu Asn Val Phe Ile
225 230 235 240

Arg Pro Val Asp Pro Glu Tyr Gln Lys Glu Ala Glu Gln Arg His Arg
245 250 255

Glu Leu Ala Ala Lys Ala Gly Gly Phe Asn Asp Phe Ala Thr Leu Ala
260 265 270

Val Ile Phe Glu Gln Cys Lys Ser Ser Gly Ala Pro Ala Ser Trp Cys
275 280 285

Gln Lys His Trp Ile His Trp Arg Cys Leu Phe Ser Ala Phe Arg Val
290 295 300

Glu Ala Gln Leu Arg Glu Leu Ile Arg Lys Leu Lys Gln Gln Ser Asp
305 310 315 320

Ser Gln Lys Arg Pro Leu Lys Ala Leu Asn Met Lys Tyr Tyr Glu Asp
325 330 335

Val Phe Val Arg Ala Ile Ser Lys Met
340 345

<210> 1476
<211> 195
<212> PRT
<213> Homo sapiens

<400> 1476
Tyr Leu Leu Phe Val Lys Asn Met Ser Ser Leu Glu Ile Ser Ser Ser
1 5 10 15

Cys Phe Ser Leu Glu Thr Lys Leu Pro Leu Ser Pro Pro Leu Val Glu
20 25 30

Asp Ser Ala Phe Glu Pro Ser Arg Lys Asp Met Asp Glu Val Glu Glu
35 40 45

<221> SITE
<222> (54)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (129)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (159)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (166)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1475
Lys Lys Val Val Ser Tyr Phe Phe Arg Trp Gln Ser Leu Leu Ile Met
1 5 10 15

Ile Met Met Phe Lys Ile Pro Pro Ser Asp Gly Leu Leu Ile Leu Pro
20 25 30

Cys Tyr Gly Ser Met Thr Thr Asp Gln Gln Arg Xaa Ile Phe Leu Pro
35 40 45

Pro Pro Pro Gly Ile Xaa Lys Cys Val Ile Ser Thr Asn Ile Ser Ala
50 55 60

Thr Ser Leu Thr Ile Asp Gly Ile Arg Tyr Val Val Asp Gly Gly Phe
65 70 75 80

Val Lys Gln Leu Asn His Asn Pro Arg Leu Gly Leu Asp Ile Leu Glu
85 90 95

Val Val Pro Ile Ser Lys Ser Glu Ala Leu Gln Arg Ser Gly Arg Ala
100 105 110

Gly Arg Thr Ser Ser Gly Lys Cys Phe Arg Ile Tyr Ser Lys Asp Phe
115 120 125

Xaa Asn Gln Cys Met Pro Asp His Val Ile Pro Glu Ile Lys Arg Thr
130 135 140

Ser Leu Thr Ser Val Val Leu Thr Leu Lys Cys Leu Ala Ile Xaa Asp
145 150 155 160

Val Ile Arg Phe Pro Xaa Leu Asp Pro Pro Asn Glu Arg Leu Ile Leu

Arg Arg Arg His Glu Ser Glu Glu Gly Asp Ser His Arg Arg His Lys
485 490 495

His Lys Lys Ser Lys Arg Ser Lys Glu Gly Lys Glu Ala Gly Ser Glu
500 505 510

Pro Ala Pro Glu Gln Glu Ser Thr Glu Ala Thr Pro Ala Glu
515 520 525

<210> 1474
<211> 70
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (7)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1474
Ile Met Val Arg Pro Gly Xaa Thr Leu Arg Leu Asp Lys Lys Met Leu
1 5 10 15

Leu Lys Arg Ser Ser Phe Lys Arg Ser Cys Ser Cys Val Lys Lys Leu
20 25 30

Gln Val Trp Phe Val Leu Val Cys Asp His Glu Cys Thr Met Lys Lys
35 40 45

Thr Leu Asp Ala Ala Phe Phe Ser Ser Glu Asp Ser Leu Gly Ile Pro
50 55 60

Glu Asp Ser Ser Leu Arg
65 70

<210> 1475
<211> 345
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (44)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

Thr Gly Asn Ser Glu Lys Glu Thr Ala Leu Pro Ser Thr Lys Ala Glu
    210   215   220

Phe Thr Ser Pro Pro Ser Leu Phe Lys Thr Gly Leu Pro Pro Ser Arg
225   230   235   240

Arg Leu Pro Gly Ala Ile Asp Val Ile Gly Gln Thr Ile Thr Ile Ser
                245   250   255

Arg Val Glu Gly Arg Arg Arg Ala Asn Glu Asn Ser Asn Ile Gln Val
            260   265   270

Leu Ser Glu Arg Ser Ala Thr Glu Val Asp Asn Asn Phe Ser Lys Pro
        275   280   285

Pro Pro Phe Phe Pro Pro Gly Ala Pro Pro Thr His Leu Pro Pro Pro
    290   295   300

Pro Phe Leu Pro Pro Pro Pro Thr Val Ser Thr Ala Pro Pro Leu Ile
305   310   315   320

Pro Pro Pro Gly Phe Pro Pro Pro Pro Gly Ala Pro Pro Pro Ser Leu
                325   330   335

Ile Pro Thr Ile Glu Ser Gly His Ser Ser Gly Tyr Asp Ser Arg Ser
            340   345   350

Ala Arg Ala Phe Pro Tyr Gly Asn Val Ala Phe Pro His Leu Pro Gly
        355   360   365

Ser Ala Pro Ser Trp Pro Ser Leu Val Asp Thr Ser Lys Gln Trp Asp
    370   375   380

Tyr Tyr Ala Arg Arg Glu Lys Asp Arg Asp Arg Glu Arg Asp Arg Asp
385   390   395   400

Arg Glu Arg Asp Arg Asp Arg Asp Arg Glu Arg Glu Arg Thr Arg Glu
                405   410   415

Arg Glu Arg Glu Arg Asp His Ser Pro Thr Pro Ser Val Phe Asn Ser
            420   425   430

Asp Glu Glu Arg Tyr Arg Tyr Arg Glu Tyr Ala Glu Arg Gly Tyr Glu
        435   440   445

Arg His Arg Ala Ser Arg Glu Lys Glu Glu Arg His Arg Glu Arg Arg
    450   455   460

His Arg Glu Lys Glu Glu Thr Arg His Lys Ser Ser Arg Ser Asn Ser
465   470   475   480

275 280 285

Gly Arg Lys Thr Val Gln Val Ile Lys Asp
290 295

<210> 1473
<211> 526
<212> PRT
<213> Homo sapiens

<400> 1473
Val Ala Leu Gly Ala Ala Met Ser Ala Gly Glu Val Glu Arg Leu Val
1 5 10 15

Ser Glu Leu Ser Gly Gly Thr Gly Gly Asp Glu Glu Glu Glu Trp Leu
20 25 30

Tyr Gly Asp Glu Asn Glu Val Glu Arg Pro Glu Glu Glu Asn Ala Ser
35 40 45

Ala Asn Pro Pro Ser Gly Ile Glu Asp Glu Thr Ala Glu Asn Gly Val
50 55 60

Pro Lys Pro Lys Val Thr Glu Thr Glu Asp Asp Ser Asp Ser Asp Ser
65 70 75 80

Asp Asp Asp Glu Asp Asp Val His Val Thr Ile Gly Asp Ile Lys Thr
85 90 95

Gly Ala Pro Gln Tyr Gly Ser Tyr Gly Thr Ala Pro Val Asn Leu Asn
100 105 110

Ile Lys Thr Gly Gly Arg Val Tyr Gly Thr Thr Gly Thr Lys Val Lys
115 120 125

Gly Val Asp Leu Asp Ala Pro Gly Ser Ile Asn Gly Val Pro Leu Leu
130 135 140

Glu Val Asp Leu Asp Ser Phe Glu Asp Lys Pro Trp Arg Lys Pro Gly
145 150 155 160

Ala Asp Leu Ser Asp Tyr Phe Asn Tyr Gly Phe Asn Glu Asp Thr Trp
165 170 175

Lys Ala Tyr Cys Glu Lys Gln Lys Arg Ile Arg Met Gly Leu Glu Val
180 185 190

Ile Pro Val Thr Ser Thr Thr Asn Lys Ile Thr Val Gln Gln Gly Arg
195 200 205

1 5 10 15

Gly Leu Arg Glu Arg Gly Arg Val Ser Xaa Arg Leu Leu Gly Pro Ala
20 25 30

Ala Ala Arg Ala Leu Leu Leu Gly Leu Pro Gly Arg Thr Leu Glu Ala
35 40 45

Ala Ser Gly Arg Ser Trp Leu Ala Ala Ala Arg Asp Arg Pro Ala Glu
50 55 60

Pro Leu Phe Gly Arg Gly Glu Gly Gly Ser Gln Ala Ser Gly Xaa Ala
65 70 75 80

Gly Ala Ala Ala Glu Ala Pro Gly Xaa Gln Trp Gly Pro Ala Ser Thr
85 90 95

Pro Ser Leu Tyr Glu Asn Pro Trp Thr Ile Pro Asn Met Leu Ser Met
100 105 110

Thr Arg Ile Gly Leu Ala Pro Val Leu Gly Tyr Leu Ile Ile Glu Glu
115 120 125

Asp Phe Asn Ile Ala Leu Gly Val Phe Ala Leu Ala Gly Leu Thr Asp
130 135 140

Leu Leu Asp Gly Phe Ile Ala Arg Asn Trp Ala Asn Gln Arg Ser Ala
145 150 155 160

Leu Gly Ser Ala Leu Asp Pro Leu Ala Asp Lys Ile Leu Ile Ser Ile
165 170 175

Leu Tyr Val Ser Leu Thr Tyr Ala Asp Leu Ile Pro Val Pro Leu Thr
180 185 190

Tyr Met Ile Ile Ser Arg Asp Val Met Leu Ile Ala Ala Val Phe Tyr
195 200 205

Val Arg Tyr Arg Thr Leu Pro Thr Pro Arg Thr Leu Ala Lys Tyr Phe
210 215 220

Asn Pro Cys Tyr Ala Thr Ala Arg Leu Lys Pro Thr Phe Ile Ser Lys
225 230 235 240

Val Asn Thr Ala Val Gln Leu Ile Leu Val Ala Ala Ser Leu Ala Ala
245 250 255

Pro Val Phe Asn Tyr Ala Asp Ser Ile Tyr Leu Gln Ile Leu Trp Cys
260 265 270

Phe Thr Ala Phe Thr Thr Ala Ala Ser Ala Tyr Ser Tyr Tyr His Tyr

<213> Homo sapiens

<400> 1471

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Leu Val Lys Gly Met Thr Val Leu Glu Ala Val Leu Glu Ile Gln Ala
  1               5                  10                  15

Ile Thr Gly Ser Arg Leu Leu Ser Met Val Pro Gly Pro Ala Arg Pro
             20                  25                  30

Pro Gly Ser Cys Trp Asp Pro Thr Gln Cys Thr Arg Thr Trp Leu Leu
         35                  40                  45

Ser His Thr Pro Arg Arg Arg Trp Ile Ser Gly Leu Pro Arg Ala Ser
     50                  55                  60

Cys Arg Leu Gly Glu Glu Pro Pro Pro Leu Pro Tyr Cys Asp Gln Ala
 65                  70                  75                  80

Tyr Gly Glu Glu Leu Ser Ile Arg His Arg Glu Thr Trp Ala Trp Leu
                 85                  90                  95

Ser Arg Thr Asp Thr Ala Trp Pro Gly Ala Pro Gly Val Lys Gln Ala
            100                 105                 110

Arg Ile Leu Gly Glu Leu Leu Leu Val
        115                 120
```

<210> 1472
<211> 298
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (26)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (79)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (89)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1472

```
Pro Cys Ala Trp Arg Ala Ala Arg Gly Gly Pro Cys Ala Ala Pro Leu
```

Glu Gly Ser Leu Ala Ala Ala Ala Glu Leu Ala Ala Gln Lys Arg Glu
        35   40   45

Gln Arg Leu Arg Lys Phe Arg Glu Leu His Leu Met Arg Asn Glu Ala
    50   55   60

Arg Lys Leu Asn His Gln Glu Val Val Glu Glu Asp Lys Arg Leu Lys
65   70   75   80

Leu Pro Ala Asn Trp Glu Ala Lys Lys Ala Arg Leu Glu Trp Glu Leu
                85   90   95

Lys Glu Glu Glu Lys Lys Lys Glu Cys Ala Ala Arg Gly Glu Asp Tyr
            100   105   110

Glu Lys Val Lys Leu Leu Glu Ile Ser Ala Glu Asp Ala Glu Arg Trp
        115   120   125

Glu Arg Lys Lys Lys Arg Lys Asn Pro Asp Leu Gly Phe Ser Asp Tyr
    130   135   140

Ala Ala Ala Gln Leu Arg Gln Tyr His Arg Leu Thr Lys Gln Ile Lys
145   150   155   160

Pro Asp Met Glu Thr Tyr Glu Arg Leu Arg Glu Lys His Gly Glu Glu
                165   170   175

Phe Phe Pro Thr Ser Asn Ser Leu Leu His Gly Thr His Val Pro Ser
            180   185   190

Thr Glu Glu Ile Asp Arg Met Val Ile Asp Leu Glu Lys Gln Ile Glu
        195   200   205

Lys Arg Asp Lys Tyr Ser Arg Arg Arg Pro Tyr Asn Asp Asp Ala Asp
    210   215   220

Ile Asp Tyr Ile Asn Glu Arg Asn Ala Lys Phe Asn Lys Lys Ala Glu
225   230   235   240

Arg Phe Tyr Gly Lys Tyr Thr Ala Glu Ile Lys Gln Asn Leu Glu Arg
                245   250   255

Gly Thr Ala Val
            260

<210> 1471
<211> 121
<212> PRT

1 5 10 15

Pro Arg Val Phe Gly Gly Arg Arg Gly Leu Ala Trp Val Pro Thr Gly
20 25 30

Cys Leu Thr Ser Ser Cys Ser Leu His Leu Gly Cys Val Gly Gln Gly
35 40 45

Leu Cys Cys His Ser Arg Asn Arg Phe Ser Ser Val Gly Leu Pro Phe
50 55 60

Leu His Pro Gly Leu Lys Trp Met Pro Asp Ala Asn Pro Ser Ser Gly
65 70 75 80

His Val Gln Pro Ala Gly Gln Pro Arg Gly Ser Leu Ser Ser Arg Ala
85 90 95

Lys Asp Ser Arg Xaa Pro Phe Ser Leu Leu Ala Phe Leu Leu Cys Pro
100 105 110

Ala Val Ala Ala Gly Xaa Ser Ser Cys Ser Arg Arg Glu Thr Val Leu
115 120 125

Pro Leu Ser Pro Ser Leu Pro His Pro Ser Ser Cys Pro Gly Asn Leu
130 135 140

Glu Pro Leu Gly Ala Glu Leu Asp Gly Gly Pro Ala Ala Ser Met Cys
145 150 155 160

Thr Lys Arg Ser Pro Phe Gln Gly Lys Arg Thr Gly Trp Arg Met Glu
165 170 175

Gly Lys Pro Pro Arg Leu Arg Glu Leu Gln Glu Gly Thr Leu Pro Gly
180 185 190

<210> 1470
<211> 260
<212> PRT
<213> Homo sapiens

<400> 1470
Arg Lys Cys Leu Tyr Leu Val Ala Gly Lys Trp Glu Glu Arg Lys Val
1 5 10 15

Val Met Ala Ala Ile Ala Ala Ser Glu Val Leu Val Asp Ser Ala Glu
20 25 30

100 105 110

Arg Tyr Glu Lys Gln Leu Ala Gln Ile Asp Gly Thr Leu Ser Thr Ile
115 120 125

Glu Phe Gln Arg Glu Ala Leu Glu Asn Ala Asn Thr Asn Thr Glu Val
130 135 140

Leu Lys Asn Met Gly Tyr Ala Ala Lys Ala Met Lys Ala Ala His Asp
145 150 155 160

Asn Met Asp Ile Asp Lys Val Asp Glu Leu Met Gln Asp Ile Ala Asp
165 170 175

Gln Gln Glu Leu Ala Glu Glu Ile Ser Thr Ala Ile Ser Lys Pro Val
180 185 190

Gly Phe Gly Glu Glu Phe Asp Glu Asp Glu Leu Met Ala Glu Leu Glu
195 200 205

Glu Leu Glu Gln Glu Glu Leu Asp Lys Asn Leu Leu Glu Ile Ser Gly
210 215 220

Pro Glu Thr Val Pro Leu Pro Asn Val Pro Ser Ile Ala Leu Pro Ser
225 230 235 240

Lys Pro Ala Lys Lys Lys Glu Glu Glu Asp Asp Asp Met Lys Glu Leu
245 250 255

Glu Asn Trp Ala Gly Ser Met
260

<210> 1469
<211> 192
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (101)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (118)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1469
Phe Arg Pro Trp Thr Leu Asp Leu Val Asp Glu Gly His Trp Pro Gly

Phe Gly Met Arg Lys Ala Leu Gln Ala Glu Gln Gly Lys Ser Asp Met
195 200 205

Glu Arg Lys Ile Ala Glu Leu Glu Thr Glu Lys Arg Asp Leu Glu Arg
210 215 220

Gln Val Asn Glu Gln Lys Ala Lys Cys Glu Ala Thr Glu Lys Arg Glu
225 230 235 240

Ser Glu Arg Arg Gln Val Glu Glu Lys Lys His Asn Glu Glu Ile Gln
245 250 255

Phe Leu Lys Arg Thr Asn Gln Gln Leu Lys Ala Gln Leu Glu Gly Ile
260 265 270

Ile Ala Pro Lys Lys
275

<210> 1468
<211> 263
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (6)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1468
Arg Pro Ala Ala Ala Xaa Ser Gly Gly Thr Gly Ser Gly Arg Gly Ser
1 5 10 15

Arg Pro Glu Pro Ser Arg Ala Glu Pro Ser Arg Ser Gly Arg Arg Arg
20 25 30

Pro Ala Arg Arg Ala Ala Thr Met Ser Val Phe Gly Lys Leu Phe Gly
35 40 45

Ala Gly Gly Gly Lys Ala Gly Lys Gly Gly Pro Thr Pro Gln Glu Ala
50 55 60

Ile Gln Arg Leu Arg Asp Thr Glu Glu Met Leu Ser Lys Lys Gln Glu
65 70 75 80

Phe Leu Glu Lys Lys Ile Glu Gln Glu Leu Thr Ala Ala Lys Lys His
85 90 95

Gly Thr Lys Asn Lys Arg Ala Ala Leu Gln Ala Leu Lys Arg Lys Lys

```
        115                 120                 125

Ala Glu Val Ser Ser Met Pro Ala Cys Lys Phe Gln Val Met Ile Gln
    130                 135                 140

Lys Leu
145



<210> 1467
<211> 277
<212> PRT
<213> Homo sapiens

<400> 1467
Ile Arg His Ser His Thr Gly Gln Gly Ser Cys Trp Val Ala Thr Leu
  1               5                  10                  15

Ala Ser Ala Met Ile Pro Pro Ala Asp Ser Leu Leu Lys Tyr Asp Thr
            20                  25                  30

Pro Val Leu Val Ser Arg Asn Thr Glu Lys Arg Ser Pro Lys Ala Arg
        35                  40                  45

Leu Leu Lys Val Ser Pro Gln Gln Pro Gly Pro Ser Gly Ser Ala Pro
    50                  55                  60

Gln Pro Pro Lys Thr Lys Leu Pro Ser Thr Pro Cys Val Pro Asp Pro
 65                  70                  75                  80

Thr Lys Gln Ala Glu Glu Ile Leu Asn Ala Ile Leu Pro Pro Arg Glu
                 85                  90                  95

Trp Val Glu Asp Thr Gln Leu Trp Ile Gln Gln Val Ser Ser Thr Pro
            100                 105                 110

Ser Thr Arg Met Asp Val Val His Leu Gln Glu Gln Leu Asp Leu Lys
        115                 120                 125

Leu Gln Gln Arg Gln Ala Arg Glu Thr Gly Ile Cys Pro Val Arg Arg
    130                 135                 140

Glu Leu Tyr Ser Gln Cys Phe Asp Glu Leu Ile Arg Glu Val Thr Ile
145                 150                 155                 160

Asn Cys Ala Glu Arg Gly Leu Leu Leu Leu Arg Val Arg Asp Glu Ile
                165                 170                 175

Arg Met Thr Ile Ala Ala Tyr Gln Thr Leu Tyr Glu Ser Ser Val Ala
            180                 185                 190
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Tyr Asn Cys Asn Ser Ser Asn Asn Ile Cys Trp Thr Glu Lys Gly Arg
85 90 95

Thr Val Lys Ala Val Tyr Gly Val Ser Lys Arg Trp Ser Asp Tyr Thr
100 105 110

Leu His Leu Pro Thr Gly Ser Asp Val Ala Lys His Trp Met Leu His
115 120 125

Phe Pro Arg Ile Thr Tyr Pro Leu Val His Leu Ala Asn Trp Leu Cys
130 135 140

Gly Leu Asn Leu Phe Trp Ile Cys Lys Thr Cys Phe Arg Cys Leu Lys
145 150 155 160

Arg Leu Lys Met Ser Trp Phe Leu Pro Thr Val Leu Asp Thr Gly Gln
165 170 175

Gly Phe Lys Leu Val Lys Ser
180

<210> 1466
<211> 146
<212> PRT
<213> Homo sapiens

<400> 1466
Arg Asp Gly Val Trp Ser Val Gln Val Arg Gly Gln Gly Glu Val Glu
1 5 10 15

Asn Gly Arg Cys Ile Thr Lys Leu Glu Asn Met Gly Phe Arg Val Gly
20 25 30

Gln Gly Leu Ile Glu Arg Phe Thr Lys Asp Thr Ala Arg Phe Lys Asp
35 40 45

Glu Leu Asp Ile Met Lys Phe Ile Cys Lys Asp Phe Trp Thr Thr Val
50 55 60

Phe Lys Lys Gln Ile Asp Asn Leu Arg Thr Asn His Gln Gly Ile Tyr
65 70 75 80

Val Leu Gln Asp Asn Lys Phe Arg Leu Leu Thr Gln Met Ser Ala Gly
85 90 95

Lys Gln Tyr Leu Glu His Ala Ser Lys Tyr Leu Ala Phe Thr Cys Gly
100 105 110

Leu Ile Arg Gly Gly Leu Ser Asn Leu Gly Ile Lys Ser Ile Val Thr

Ile Thr Lys Glu Gln Lys Gln Lys Lys Leu Lys Leu His Trp Leu Lys
35 40 45

Tyr Ser Phe Gln Gln Leu Ser Phe Leu Ser Thr Leu Met Ala Thr Pro
50 55 60

Pro Arg Val Glu Val Thr Val Val Cys Thr Gln Val Val Pro Ile Lys
65 70 75 80

Thr Pro Ser Phe Glu Pro Asn Tyr Val His Phe Val Ile Asp
85 90

<210> 1465
<211> 183
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (7)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (22)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (25)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1465
Gln Val Glu Ile His Tyr Xaa Phe Asp Thr Leu Ile Glu Trp Trp Arg
1 5 10 15

Glu Lys Asn Gly Ser Xaa Cys Ser Xaa Leu Ile Ile Val Leu Asp Ser
20 25 30

Glu Asn Ser Thr Pro Trp Val Lys Glu Val Arg Lys Ile Asn Asp Gln
35 40 45

Tyr Ile Ala Val Gln Gly Ala Glu Leu Ile Lys Thr Val Asp Ile Glu
50 55 60

Glu Ala Asp Pro Pro Gln Leu Gly Asp Phe Thr Lys Asp Trp Val Glu
65 70 75 80

<211> 163
<212> PRT
<213> Homo sapiens

<400> 1463
Leu Leu Asp Phe Pro Ala Leu Pro Lys Phe Val Leu Ala Gln Ser Pro
1 5 10 15

Lys Ala Gly Lys Pro Ser Thr Met Thr Ser Met Thr Gln Ser Leu Arg
20 25 30

Glu Val Ile Lys Ala Met Thr Lys Ala Arg Asn Phe Glu Arg Val Leu
35 40 45

Gly Lys Ile Thr Leu Val Ser Ala Ala Pro Gly Lys Val Ile Cys Glu
50 55 60

Met Lys Val Glu Glu Glu His Thr Asn Ala Ile Gly Thr Leu His Gly
65 70 75 80

Gly Leu Thr Ala Thr Leu Val Asp Asn Ile Ser Thr Met Ala Leu Leu
85 90 95

Cys Thr Glu Arg Gly Ala Pro Gly Val Ser Val Asp Met Asn Ile Thr
100 105 110

Tyr Met Ser Pro Ala Lys Leu Gly Glu Asp Ile Val Ile Thr Ala His
115 120 125

Val Leu Lys Gln Gly Lys Thr Leu Ala Phe Thr Ser Val Asp Leu Thr
130 135 140

Asn Lys Ala Thr Gly Lys Leu Ile Ala Gln Gly Arg His Thr Lys His
145 150 155 160

Leu Gly Asn

<210> 1464
<211> 94
<212> PRT
<213> Homo sapiens

<400> 1464
Trp Cys Cys Phe Arg Thr Val Phe Ser Tyr Pro Phe Arg Leu Val Phe
1 5 10 15

Cys Met Arg His His Cys Lys Lys Ile Leu Ser Leu Gln Lys Tyr Phe
20 25 30

```
Glu Asp Asn Asp Xaa Val His Ile Glu Val His Asn Pro Arg Asn Thr
145                 150                 155                 160

Glu Ala Val Thr Leu Asn Phe Arg Gly Glu Lys Leu Ala Lys Val Met
                165                 170                 175

Gly Phe Leu Ala Asp Lys Lys Pro Glu Gln Gly Gln Arg Val Ser Gly
            180                 185                 190

Ile Leu Val Lys Arg Asn Phe Asn Tyr His Ile Leu Ser Pro Cys Asp
        195                 200                 205

Leu Ser Asn Tyr Thr Asp Leu Ala Met Ser Thr Val Lys Gln Thr Gln
    210                 215                 220

Ala Ile Pro Tyr Thr Gly Pro Phe Asn Leu Leu Cys Tyr Gln Leu Gln
225                 230                 235                 240

Lys Leu Thr Gly Asp Val Glu Glu Leu Glu Ile Gln Glu Lys Pro Ala
                245                 250                 255

Leu Lys Val Phe Lys Asn Ile Thr Val Ile Gln Glu Pro Gly Met Val
            260                 265                 270

Val Leu Glu Trp Leu Ala Asn Pro Ser Asn Asp Met Tyr Ala Asp Thr
        275                 280                 285

Val Thr Thr Val Ile Leu Glu Val Gln Ser Asn Pro Lys Ile Arg Lys
    290                 295                 300

Gly Ala Val Gln Lys Val Ser Lys Lys Leu Glu Met His Val Tyr Ser
305                 310                 315                 320

Lys Arg Leu Glu Ile Met Leu Gln Asp Ile Phe Gly Glu Asp Cys Val
                325                 330                 335

Ser Val Lys Asp Asp Ser Ile Leu Ser Val Thr Val Asp Gly Lys Thr
            340                 345                 350

Ala Asn Leu Asn Leu Glu Thr Arg Thr Val Glu Cys Glu Glu Gly Ser
        355                 360                 365

Glu Asp Asp Glu Ser Leu Arg Glu Met Val Glu Leu Ala Ala Gln Arg
    370                 375                 380

Leu Tyr Glu Ala Leu Thr Pro Val His
385                 390
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<210> 1463

210 215 220

His Val Asp Ser His Gly His Asn Val Phe Lys Glu Arg Ile Ser Asp
225 230 235 240

Met Cys Lys Glu Asn Arg Glu Ser Leu Val Val Asn Tyr Glu Asp Thr
245 250 255

Gly Ser Gln Gly Ala Arg Ala Gly Leu Leu Pro Ala
260 265

<210> 1462
<211> 393
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (149)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1462
Lys Ile Arg Lys Gln Ile Asn Ile Asn Asn Pro Phe Val Phe Lys His
1 5 10 15

Ile Ser Asn Leu Lys Ser Met Asp His Phe Asp Asp Ile Gly Pro Ser
20 25 30

Val Val Met Ala Ser Pro Gly Met Met Gln Ser Gly Leu Ser Arg Glu
35 40 45

Leu Phe Glu Ser Trp Cys Thr Asp Lys Arg Asn Gly Val Ile Ile Ala
50 55 60

Gly Tyr Cys Val Glu Gly Thr Leu Ala Lys His Ile Met Ser Glu Pro
65 70 75 80

Glu Glu Ile Thr Thr Met Ser Gly Gln Lys Leu Pro Leu Lys Met Ser
85 90 95

Val Asp Tyr Ile Ser Phe Ser Ala His Thr Asp Tyr Gln Gln Thr Ser
100 105 110

Glu Phe Ile Arg Ala Leu Lys Pro Pro His Val Ile Leu Val His Gly
115 120 125

Glu Gln Asn Glu Met Ala Arg Leu Lys Ala Ala Leu Ile Arg Glu Tyr
130 135 140

Ser

<210> 1461
<211> 268
<212> PRT
<213> Homo sapiens

<400> 1461
Thr Thr Phe Arg Ala Lys Pro Gly Cys Cys Cys Ser Gly Gly Glu Asp
1 5 10 15

Arg Gly Thr Ala Met Ala Glu Ser Ser Glu Ser Phe Thr Met Ala Ser
20 25 30

Ser Pro Ala Gln Arg Arg Arg Gly Asn Asp Pro Leu Thr Ser Ser Pro
35 40 45

Gly Arg Ser Ser Arg Arg Thr Asp Ala Leu Thr Ser Ser Pro Gly Arg
50 55 60

Asp Leu Pro Pro Phe Glu Asp Glu Ser Glu Gly Leu Leu Gly Thr Glu
65 70 75 80

Gly Pro Leu Glu Glu Glu Glu Asp Gly Glu Glu Leu Ile Gly Asp Gly
85 90 95

Met Glu Arg Asp Tyr Arg Ala Ile Pro Glu Leu Asp Ala Tyr Glu Ala
100 105 110

Glu Gly Leu Ala Leu Asp Asp Glu Asp Val Glu Glu Leu Thr Ala Ser
115 120 125

Gln Arg Glu Ala Ala Glu Arg Ala Met Arg His Val Thr Gly Arg Leu
130 135 140

Ala Gly Ala Trp Ala Ala Cys Ala Val Gly Ser Cys Met Thr Ala Met
145 150 155 160

Arg Arg Thr Arg Ser Ala Leu Pro Ala Ser Ala Ala Ser Gly Ala Ala
165 170 175

Thr Glu Asp Gly Glu Glu Asp Glu Glu Met Ile Glu Ser Ile Glu Asn
180 185 190

Leu Glu Asp Leu Lys Gly His Ser Val Arg Glu Trp Val Ser Met Ala
195 200 205

Gly Pro Arg Leu Glu Ile His His Arg Phe Lys Asn Phe Leu Arg Thr

Lys Gly Ser Ala Arg Lys Ala Gly Pro Ala Lys Glu Gln Glu Pro Met
100 105 110

Pro Thr Val Asp Ser His Glu Pro Arg Leu Gly Pro Arg Pro Arg Ser
115 120 125

His Asn Lys Val Leu Asn Pro Pro Gly Gly Lys Ser Ser Ile Ser Phe
130 135 140

Tyr
145

<210> 1460
<211> 113
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (15)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (34)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1460
Pro Ser Ile Tyr Asp Ile Leu Leu Leu Ile Ile Leu Trp Leu Xaa Ser
1 5 10 15

Arg Met Asp Val Glu Ser Cys Ser Gln Arg Glu Asp Arg Leu Lys Arg
20 25 30

Ala Xaa Ser Ala Lys Ser Ala Asn Ala Cys Asn Asn Cys Lys Cys Ser
35 40 45

Val Ala Thr Cys Arg Leu Asn Ser Ala Gly Pro Glu Phe Cys Ile Arg
50 55 60

Gly Leu Gly Tyr Ser Pro Asp Lys Gly Trp Arg His Arg Met Leu Glu
65 70 75 80

Phe Ser Gly His Ser Gly Lys Gly Pro Leu Cys Arg Ala Val Thr Val
85 90 95

Ser Cys Pro Ile Gly Pro Phe Pro Pro Val Lys Cys Lys Ser Gln Glu
100 105 110

165 170 175

Cys Val Lys Ser Lys Leu Lys Gln Phe Asp Ser Val Val His Leu Ile
180 185 190

Asp Tyr Tyr Val Gln Met Cys Lys Asp Lys Arg Thr Gly Pro Glu Ala
195 200 205

Pro Arg Asn Gly Thr Val His Leu Tyr Leu Thr Lys Pro Leu Tyr Thr
210 215 220

Ser Ala Pro Ser Leu Gln His Leu Cys Arg Leu Thr Ile Asn Lys Cys
225 230 235 240

Thr Gly Ala Ile Trp Gly Leu Pro Leu Pro Thr Arg Leu Lys Asp Tyr
245 250 255

Leu Gly Arg Ile
260

<210> 1459
<211> 145
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (11)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1459
Ala Glu Arg Ser Thr Cys Ser Arg Ser Arg Xaa Ala Arg Ala Ala Ala
1 5 10 15

Pro Leu Pro Gly Gly Lys Gly Ser Gly Ile Phe Asp Glu Ser Thr Pro
20 25 30

Val Gln Thr Arg Gln His Leu Asn Pro Pro Gly Gly Lys Thr Ser Asp
35 40 45

Ile Phe Gly Ser Pro Val Thr Ala Thr Ser Arg Leu Ala His Pro Asn
50 55 60

Lys Pro Lys Asp His Val Phe Leu Cys Glu Gly Glu Glu Pro Lys Ser
65 70 75 80

Asp Leu Lys Ala Ala Arg Ser Ile Pro Ala Gly Ala Glu Pro Gly Glu
85 90 95

50

<210> 1458
<211> 260
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (4)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (84)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1458
Pro Arg Leu Xaa Gly Asp Phe Val Ile Arg Pro Pro Gly Ser Gly Glu
1   5   10   15

Lys Glu Pro His Pro Phe Ser Leu Cys His His Phe Gly His Pro Ala
            20   25   30

Gly Leu Val Leu Gly Phe Ala Leu Thr Ser Arg Lys Asp Ala Asn Pro
        35   40   45

Ser Leu Thr Pro Ala Arg Ala Ala Thr Cys Leu Cys Arg Gly Asp Pro
    50   55   60

Ser Leu Met Thr Leu Arg Cys Leu Glu Pro Ser Gly Asn Gly Gly Glu
65   70   75   80

Gly Thr Arg Xaa Gln Trp Gly Thr Ala Gly Ser Ala Glu Glu Pro Ser
                85   90   95

Pro Gln Ala Ala Arg Leu Ala Lys Ala Leu Arg Glu Leu Gly Gln Thr
            100   105   110

Gly Trp Tyr Trp Gly Ser Met Thr Val Asn Glu Ala Lys Glu Lys Leu
        115   120   125

Lys Glu Ala Pro Glu Gly Thr Phe Leu Ile Arg Asp Ser Ser His Ser
    130   135   140

Asp Tyr Leu Leu Thr Ile Ser Val Lys Thr Ser Ala Gly Pro Thr Asn
145   150   155   160

Leu Arg Ile Glu Tyr Gln Asp Gly Lys Phe Arg Leu Asp Ser Ile Ile

210 215 220

Val Lys Ile Pro Glu Ile
225 230

<210> 1456
<211> 71
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (10)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1456
Phe Phe Phe Phe Phe Ser Ile Ile Phe Xaa Gln Lys Gly Lys Lys Pro
1 5 10 15

Phe Lys Ser Leu Arg Asn Leu Lys Ile Asp Leu Asp Leu Thr Ala Glu
20 25 30

Gly Asp Leu Asn Ile Ile Met Ala Leu Ala Glu Lys Ile Lys Pro Gly
35 40 45

Leu His Ser Phe Ile Phe Gly Arg Pro Phe Tyr Thr Ser Val Gln Glu
50 55 60

Arg Asp Val Leu Met Thr Phe
65 70

<210> 1457
<211> 51
<212> PRT
<213> Homo sapiens

<400> 1457
Glu Tyr Asn Ser Val Asn Ala Asn Met Ile Ala Thr Leu Phe Thr Ser
1 5 10 15

Leu Leu Leu Arg Pro Pro Pro Asn Leu Met Ala Arg Gln Thr Pro Ser
20 25 30

Asp Arg Gln Arg Ala Ile Gln Phe Leu Leu Gly Phe Leu Leu Gly Ser
35 40 45

Glu Glu Asp

<220>
<221> SITE
<222> (150)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (152)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1455
Leu Ala Gly Pro Arg Arg Trp Arg Val Ser Arg Pro Glu Ala Tyr Arg
1   5   10   15

Ser Arg Trp Arg Gly Arg Ala Gly Gln Gly Phe Gly Leu Arg Arg Arg
            20   25   30

Glu Met Ala Ala Gly Gly Arg Met Glu Asp Gly Ser Leu Asp Ile Thr
        35   40   45

Gln Ser Ile Glu Asp Asp Pro Leu Leu Asp Ala Gln Leu Leu Pro His
    50   55   60

His Ser Leu Gln Ala His Phe Arg Pro Arg Phe His Pro Leu Pro Thr
65   70   75   80

Val Ile Ile Val Asn Leu Leu Trp Phe Ile His Leu Val Phe Val Val
                85   90   95

Leu Ala Phe Leu Thr Gly Val Leu Cys Ser Tyr Pro Asn Pro Asn Glu
            100   105   110

Asp Lys Cys Pro Gly Asn Tyr Thr Asn Pro Leu Lys Val Gln Thr Val
        115   120   125

Ile Ile Leu Gly Lys Val Ile Leu Trp Ile Leu His Leu Leu Leu Glu
    130   135   140

Cys Tyr Ile Gln Tyr Xaa His Xaa Lys Ile Arg Asn Arg Gly Tyr Asn
145   150   155   160

Leu Ile Tyr Arg Ser Thr Arg His Leu Lys Arg Leu Ala Leu Met Ile
            165   170   175

Gln Ser Ser Gly Asn Thr Val Leu Leu Leu Ile Leu Cys Met Gln His
            180   185   190

Ser Phe Pro Glu Pro Gly Arg Leu Tyr Leu Asp Leu Ile Leu Ala Ile
        195   200   205

Leu Ala Leu Glu Leu Ile Cys Ser Leu Ile Cys Leu Leu Ile Tyr Thr

Pro Leu Thr Arg Ser Ser Gly Ser Ser Leu Ala Ser Arg Ser Met Phe
580 585 590

Thr Glu Lys Thr Thr Thr Tyr Gln Tyr Pro Arg Ala Ile Leu Ser Xaa
595 600 605

Asp Leu Ser Gly Glu Ser Met Cys Asn His Val Met Val Lys Thr Arg
610 615 620

Leu Thr Ile Pro Lys Cys Val Thr Glu Asn Lys Thr Tyr Ser Val Lys
625 630 635 640

Ser Met Arg Phe Lys
645

<210> 1454
<211> 69
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (8)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1454
Leu Val Ile Tyr Ser Trp His Xaa Phe Phe Ser Phe Gly Phe Ala Trp
1 5 10 15

Leu Phe Leu Gln Val Leu Ser Arg Tyr His Ser Ala Asn His Cys Tyr
20 25 30

Arg Met Val Thr Ser Phe Val Leu Thr Val Gln Gln Gln Ile Trp Val
35 40 45

Arg Leu Asn Leu Ser Val Asn Phe Phe Phe Trp Cys Phe Phe Gly Leu
50 55 60

Met Thr Val Ser Leu
65

<210> 1455
<211> 230
<212> PRT
<213> Homo sapiens

Ser Ser Ala Asn Thr Gln Lys Pro Ala Leu Leu Ser Ser Thr Leu Ser
305 310 315 320

Ser Gly Lys Ala Arg Ser Lys Lys Cys Lys His Glu Ser Gly Asp Ser
325 330 335

Ser Gly Cys Ile Lys Pro Pro Lys Ser Pro Leu Ser Pro Glu Leu Ile
340 345 350

Gln Val Glu Asp Leu Thr Leu Val Ser Gln Leu Ser Ser Ser Val Ile
355 360 365

Asn Lys Thr Ser Pro Pro Gln Pro Val Asn Pro Pro Arg Pro Phe Lys
370 375 380

His Ser Glu Arg Arg Arg Arg Ser Gln Arg Leu Ala Thr Leu Pro Met
385 390 395 400

Pro Asp Asp Ser Val Glu Lys Val Ser Ser Pro Ser Pro Ala Thr Asp
405 410 415

Gly Lys Val Phe Ser Ile Ser Ser Gln Asn Gln Gln Glu Ser Ser Val
420 425 430

Pro Glu Val Pro Asp Val Ala His Leu Pro Leu Glu Lys Leu Gly Pro
435 440 445

Cys Leu Pro Leu Asp Leu Ser Arg Gly Ser Glu Val Thr Ala Pro Val
450 455 460

Ala Ser Asp Ser Ser Tyr Arg Asn Glu Cys Pro Arg Ala Glu Lys Glu
465 470 475 480

Asp Thr Gln Met Leu Pro Asn Pro Ser Ser Lys Ala Ile Ala Asp Gly
485 490 495

Arg Gly Ala Pro Ala Ala Ala Gly Ile Ser Lys Thr Glu Lys Lys Val
500 505 510

Lys Leu Glu Asp Lys Ser Ser Thr Ala Phe Gly Lys Arg Lys Glu Lys
515 520 525

Asp Lys Glu Arg Arg Glu Lys Arg Asp Lys Asp His Tyr Arg Pro Lys
530 535 540

Gln Lys Lys Lys Lys Lys Lys Lys Lys Lys Ser Lys Gln His Asp Tyr
545 550 555 560

Ser Asp Tyr Glu Asp Ser Ser Leu Glu Phe Leu Glu Arg Cys Ser Ser
565 570 575

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Pro Ser Arg Ile Glu Lys Ile Asp Tyr Glu Glu Gly Lys Met Leu Val
        35                  40                  45

His Phe Glu Arg Trp Ser His Arg Tyr Asp Glu Trp Ile Tyr Trp Asp
    50                  55                  60

Ser Asn Arg Leu Arg Pro Leu Glu Arg Pro Ala Leu Arg Lys Glu Gly
65                  70                  75                  80

Leu Lys Asp Glu Glu Asp Phe Phe Asp Phe Lys Ala Gly Glu Glu Val
                85                  90                  95

Leu Ala Arg Trp Thr Asp Cys Arg Tyr Tyr Pro Ala Lys Ile Glu Ala
            100                 105                 110

Ile Asn Lys Glu Gly Thr Phe Thr Val Gln Phe Tyr Asp Gly Val Ile
        115                 120                 125

Arg Cys Leu Lys Arg Met His Ile Lys Ala Met Pro Glu Asp Ala Lys
    130                 135                 140

Gly Gln Asp Trp Ile Ala Leu Val Lys Ala Ala Ala Ala Ala Ala Ala
145                 150                 155                 160

Lys Asn Lys Thr Gly Ser Lys Pro Arg Thr Ser Ala Asn Ser Asn Lys
                165                 170                 175

Asp Lys Asp Lys Asp Glu Arg Lys Trp Phe Lys Val Pro Ser Lys Lys
            180                 185                 190

Glu Glu Thr Ser Thr Cys Ile Ala Thr Pro Asp Val Glu Lys Lys Glu
        195                 200                 205

Asp Leu Pro Thr Ser Ser Glu Thr Phe Gly Leu His Val Glu Asn Val
    210                 215                 220

Pro Lys Met Val Phe Pro Gln Pro Glu Ser Thr Leu Ser Asn Lys Arg
225                 230                 235                 240

Lys Asn Asn Gln Gly Asn Ser Phe Gln Ala Lys Arg Ala Arg Leu Asn
                245                 250                 255

Lys Ile Thr Gly Leu Leu Ala Ser Lys Ala Val Gly Val Asp Gly Ala
            260                 265                 270

Glu Lys Lys Glu Asp Tyr Asn Glu Thr Ala Pro Met Leu Glu Gln Ala
        275                 280                 285

Ile Ser Pro Lys Pro Gln Ser Gln Lys Lys Asn Glu Ala Asp Ile Ser
    290                 295                 300
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Met Met Lys Glu Ala Leu Glu Lys Leu Gln Leu Asn Ile Val Glu Met
35 40 45

Lys Asp Glu Asn Ala Thr Leu Asp Gly Gly Asp Val Leu Phe Thr Gly
50 55 60

Arg Glu Phe Phe Val Gly Leu Ser Lys Arg Thr Asn Gln Arg Gly Ala
65 70 75 80

Glu Ile Leu Ala Asp Thr Phe Lys Asp Tyr Ala Val Ser Thr Val Pro
85 90 95

Val Ala Asp Gly Leu His Leu Lys Ser Phe Cys Ser Met Ala Gly Pro
100 105 110

Asn Leu Ile Ala Ile Gly Ser Ser Glu Ser Ala Gln Lys Ala Leu Lys
115 120 125

Ile Met Gln Gln Met Ser Asp His Arg Tyr Asp Lys Leu Thr Val Pro
130 135 140

Asp Asp Ile Ala Ala Asn Cys Ile Tyr Leu Asn Ile Pro Asn Lys Gly
145 150 155 160

His Val Leu Leu His Arg Thr Pro Glu Glu Tyr Pro Glu Ser Ala Lys
165 170 175

Val Tyr Glu Lys Leu Lys Asp His Met Leu Ile Pro Val Ser Met Ser
180 185 190

Glu Leu Glu Lys Val Asp Gly Leu Leu Thr Cys Cys Gln Phe
195 200 205

<210> 1453
<211> 645
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (608)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1453
Ala His Ala Ser Gly Lys Lys Pro Pro Asn Arg Pro Gly Ile Thr Phe
1 5 10 15

Glu Ile Gly Ala Arg Leu Glu Ala Leu Asp Tyr Leu Gln Lys Trp Tyr
20 25 30

<222> (150)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1451
Val Met Ala Ala Cys Arg Tyr Cys Cys Ser Cys Leu Arg Leu Arg Pro
1   5   10   15

Leu Ser Asp Gly Pro Phe Leu Leu Pro Arg Arg Asp Arg Ala Leu Thr
            20   25   30

Gln Leu Gln Val Arg Ala Leu Trp Ser Ser Ala Gly Ser Arg Ala Val
        35   40   45

Ala Val Asp Leu Gly Asn Arg Lys Leu Glu Ile Ser Ser Gly Lys Leu
    50   55   60

Ala Arg Phe Ala Asp Gly Ser Ala Val Val Gln Ser Gly Asp Thr Ala
65   70   75   80

Val Met Val Thr Ala Val Ser Lys Thr Lys Pro Ser Pro Ser Gln Phe
                85   90   95

Met Pro Leu Val Val Asp Tyr Arg Gln Lys Ala Ala Ala Ala Gly Arg
            100   105   110

Ile Pro Thr Asn Tyr Leu Arg Arg Glu Xaa Gly Thr Ser Asp Lys Glu
        115   120   125

Ile Leu Thr Ser Arg Ile Ile Asp Arg Ser Ile Arg Pro Leu Phe Xaa
    130   135   140

Ala Gly Tyr Phe Tyr Xaa Thr Gln Val Leu Cys Asn Leu Leu Ala Val
145   150   155   160

Asp Gly Val Asn

<210> 1452
<211> 206
<212> PRT
<213> Homo sapiens

<400> 1452
Ala Asp Cys Val Phe Val Glu Asp Val Ala Val Val Cys Glu Glu Thr
1   5   10   15

Ala Leu Ile Thr Arg Pro Gly Ala Pro Ser Arg Arg Lys Glu Val Asp
            20   25   30

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        115                 120                 125
Phe Val Ala His Lys Glu Ile Lys Leu Thr Leu Leu Asn Lys Ala Ala
    130                 135                 140
Asp Lys Gly Ser Arg Lys Arg Tyr Glu Pro Ser Asp Lys Asp Arg Gln
145                 150                 155                 160
Ser Pro Pro Pro Ala Lys Arg Pro Asn Thr Ser Pro Asp Arg Gly Ser
                165                 170                 175
Arg Asp Arg Lys Ser Gly Xaa Arg Leu Gly Ser Pro Lys Pro Glu Arg
            180                 185                 190
Gln Arg Gly Gln Asn Ser Lys Ala Pro Ala Ala Pro Ala Asp Arg Lys
        195                 200                 205
Arg Gln Leu Ser Pro Gln Ser Lys Ser Ser Ser Lys Val Thr Ser Val
    210                 215                 220
Pro Gly Lys Ala Ser Asp Pro Gly Ala Ala Ser Thr Lys Ser Gly Lys
225                 230                 235                 240
Ala Ser Thr Leu Ser Arg Arg Glu Glu Leu Leu Lys Gln Leu Lys Ala
                245                 250                 255
Val Glu Asp Ala Ile Ala Arg Lys Arg Ala Lys Ile Pro Gly Lys Ala
            260                 265                 270
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<210> 1451
<211> 164
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (122)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (144)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE

<210> 1449
<211> 44
<212> PRT
<213> Homo sapiens

<400> 1449
Asp Trp Val Phe Lys Leu Ala Phe Val Asn Leu Ile Ala Leu Arg Leu
1 5 10 15

Pro Ser Asn Glu Lys Lys Ser Gln Asn Phe Tyr Leu Val Phe Val His
20 25 30

Phe Leu Leu Lys Cys Asn His Met Ile Leu Val Cys
35 40

<210> 1450
<211> 272
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (183)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1450
Ser Thr Pro Cys Trp Pro Leu Pro Pro Val Trp Leu Gly Cys Gly Glu
1 5 10 15

Met Cys Leu Cys Val Gln Val Pro Glu Arg Asp Ser Val Ser Ser Val
20 25 30

Ser Ser Ala Thr Ser Ser Ser Ser Ser Ala His Ser Val Asp Ser Glu
35 40 45

Asp Met Tyr Ala Asp Leu Ala Ser Pro Val Ser Ser Ala Ser Ser Arg
50 55 60

Ser Pro Ala Pro Ala Gln Thr Arg Lys Glu Lys Gly Lys Ser Lys Lys
65 70 75 80

Glu Asp Gly Val Lys Glu Glu Lys Arg Lys Arg Asp Ser Ser Thr Gln
85 90 95

Pro Pro Lys Ser Ala Lys Pro Pro Ala Gly Gly Lys Ser Ser Gln Gln
100 105 110

Pro Ser Thr Pro Gln Gln Ala Pro Pro Gly Gln Pro Gln Gln Gly Thr

<210> 1448
<211> 219
<212> PRT
<213> Homo sapiens

<400> 1448
Phe Glu Glu Arg Tyr Thr Phe Glu Ile Pro Phe Leu Glu Ala Gln Arg
1 5 10 15

Arg Thr Leu Leu Leu Thr Val Val Asp Phe Asp Lys Phe Ser Arg His
20 25 30

Cys Val Ile Gly Lys Val Ser Val Pro Leu Cys Glu Val Asp Leu Val
35 40 45

Lys Gly Gly His Trp Trp Lys Ala Leu Ile Pro Ser Ser Gln Asn Glu
50 55 60

Val Glu Leu Gly Glu Leu Leu Leu Ser Leu Asn Tyr Leu Pro Ser Ala
65 70 75 80

Gly Arg Leu Asn Val Asp Val Ile Arg Ala Lys Gln Leu Leu Gln Thr
85 90 95

Asp Val Ser Gln Gly Ser Asp Pro Phe Val Lys Ile Gln Leu Val His
100 105 110

Gly Leu Lys Leu Val Lys Thr Lys Lys Thr Ser Phe Leu Arg Gly Thr
115 120 125

Ile Asp Pro Phe Tyr Asn Glu Ser Phe Ser Phe Lys Val Pro Gln Glu
130 135 140

Glu Leu Glu Asn Ala Ser Leu Val Phe Thr Val Phe Gly His Asn Met
145 150 155 160

Lys Ser Ser Asn Asp Phe Ile Gly Arg Ile Val Ile Gly Gln Tyr Ser
165 170 175

Ser Gly Pro Ser Glu Thr Asn His Trp Arg Arg Met Leu Asn Thr His
180 185 190

Arg Thr Ala Val Glu Gln Trp His Ser Leu Arg Ser Arg Ala Glu Cys
195 200 205

Asp Arg Val Ser Pro Ala Ser Leu Glu Val Thr
210 215

```
65


<210> 1447
<211> 189
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (116)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1447
Tyr Cys Ser Ala Ala Met Ala Glu Pro Gln Pro Pro Ser Gly Gly Leu
  1               5                  10                  15

Thr Asp Glu Ala Ala Leu Ser Cys Cys Ser Asp Ala Asp Pro Ser Thr
             20                  25                  30

Lys Asp Phe Leu Leu Gln Gln Thr Met Leu Arg Val Lys Asp Pro Lys
         35                  40                  45

Lys Ser Leu Asp Phe Tyr Thr Arg Val Leu Gly Met Thr Leu Ile Gln
     50                  55                  60

Lys Cys Asp Phe Pro Ile Met Lys Phe Ser Leu Tyr Phe Leu Ala Tyr
 65                  70                  75                  80

Glu Asp Lys Asn Asp Ile Pro Lys Glu Lys Asp Glu Lys Ile Ala Trp
                 85                  90                  95

Ala Leu Ser Arg Lys Ala Thr Leu Glu Leu Thr His Asn Trp Gly Thr
            100                 105                 110

Glu Asp Asp Xaa Thr Gln Ser Tyr His Asn Gly Asn Ser Asp Pro Arg
        115                 120                 125

Gly Phe Gly His Ile Gly Ile Ala Val Pro Asp Val Tyr Ser Ala Cys
    130                 135                 140

Lys Arg Phe Glu Glu Leu Gly Val Lys Phe Val Lys Lys Pro Asp Asp
145                 150                 155                 160

Gly Lys Met Lys Gly Leu Ala Phe Ile Gln Asp Pro Asp Gly Tyr Trp
                165                 170                 175

Ile Glu Ile Leu Asn Pro Asn Lys Met Ala Thr Leu Met
            180                 185
```

<210> 1445
<211> 99
<212> PRT
<213> Homo sapiens

<400> 1445
Ser Thr Cys Arg Val Val Glu Val Gly Lys Gln Gln Gly Thr Leu Tyr
1 5 10 15

Asn Ala Arg Gln Leu Gln Tyr Gly Lys Asn Gly Pro Gly Pro Trp Asp
20 25 30

Lys Ile Arg Val Val Leu Thr Pro Arg Gly Arg Gly Gln Pro Ala Phe
35 40 45

Arg Val Ala Ser Ser Val Pro Leu Gln Ser Asp Cys Val His Leu Val
50 55 60

Gln Leu Met Ser Glu Ser Pro Ala Leu Gly Tyr Phe Ile Leu Val Arg
65 70 75 80

Thr Leu Thr Ser His Ile Gly Ser Ile Asn Ser Phe Gly Lys Glu Leu
85 90 95

Ile Ser Phe

<210> 1446
<211> 65
<212> PRT
<213> Homo sapiens

<400> 1446
Gln Pro Pro Gln Thr Phe Trp Gln Ala Leu Gln Leu Cys Tyr Phe Ile
1 5 10 15

Gln Leu Ile Leu Gln Ile Glu Ser Asn Gly His Ser Val Ser Phe Gly
20 25 30

Arg Met Asp Gln Tyr Leu Tyr Pro Tyr Tyr Arg Arg Asp Val Glu Leu
35 40 45

Asn Gln Thr Leu Asp Arg Glu His Ala Ile Glu Met Cys Ile Ala Ala
50 55 60

Gly

```
Thr Thr Pro Leu Ala Ser Ala Pro Arg Pro Ala Ala Pro Ala Asn Asn
        275                 280                 285

Pro Pro Pro Pro Ser Leu Met Ser Thr Thr Gln Ser Arg Pro Pro Trp
    290                 295                 300

Met Asn Ser Gly Pro Ser Glu Ser Arg Pro Tyr His Gly Met His Gly
305                 310                 315                 320

Gly Gly Pro Gly Gly Pro Gly Gly Gly Pro His Ser Phe Pro His Pro
                325                 330                 335

Leu Pro Ser Leu Thr Gly Gly His Gly Gly His Pro Met Gln His Asn
            340                 345                 350

Pro Asn Gly Pro Pro Pro Pro Trp Met Gln Pro Pro Pro Pro Pro Met
        355                 360                 365

Asn Gln Gly Pro His Pro Pro Gly His His Gly Pro Pro Pro Met Asp
    370                 375                 380

Gln Tyr Leu Gly Ser Thr Pro Val Gly Ser Gly Val Tyr Arg Leu His
385                 390                 395                 400

Gln Gly Lys Gly Met Met Pro Pro Pro Pro Met Gly Met Met Pro Pro
                405                 410                 415

Pro Pro Pro Pro Pro Ser Gly Gln Pro Pro Pro Pro Pro Ser Gly Pro
            420                 425                 430

Leu Pro Pro Trp Gln Gln Gln Gln Gln Gln Pro Pro Pro Xaa Pro Pro
        435                 440                 445

Pro Ser Ser Ser Met Ala Ser Ser Thr Pro Leu Pro Trp Gln Gln Asn
    450                 455                 460

Thr Thr Thr Thr Thr Thr Ser Ala Gly Xaa Gly Ser Ile Pro Pro Trp
465                 470                 475                 480

Gln Gln Gln Gln Ala Ala Ala Ala Ala Ser Pro Gly Ala Pro Gln Met
                485                 490                 495

Gln Gly Asn Pro Thr Xaa Gly Xaa Met Ala Leu Leu Gln Trp Ile Ser
            500                 505                 510

Thr Trp Glu Val Arg Leu Trp Ala Leu Gly Ser Ile Ala Cys Ile Lys
        515                 520                 525

Glu Lys Val
    530
```

<400> 1444

Glu Lys Ser Val Gln Xaa Ser Lys Arg Glu Ser Val Ser His Arg Ser
1 5 10 15

Pro Ser Pro Glu Pro Ile Tyr Asn Ser Glu Gly Lys Arg Leu Asn Thr
20 25 30

Arg Glu Phe Arg Thr Arg Lys Lys Leu Glu Glu Glu Arg His Asn Leu
35 40 45

Ile Thr Glu Met Val Ala Leu Asn Pro Asp Phe Lys Pro Pro Ala Asp
50 55 60

Tyr Lys Pro Pro Ala Thr Arg Val Ser Asp Lys Val Met Ile Pro Gln
65 70 75 80

Asp Glu Tyr Pro Glu Ile Asn Phe Val Gly Leu Leu Ile Gly Pro Arg
85 90 95

Gly Asn Thr Leu Lys Asn Ile Glu Lys Glu Cys Asn Ala Lys Ile Met
100 105 110

Ile Arg Gly Lys Gly Ser Val Lys Glu Gly Lys Val Gly Arg Lys Asp
115 120 125

Gly Gln Met Leu Pro Gly Glu Asp Glu Pro Leu His Ala Leu Val Thr
130 135 140

Ala Asn Thr Met Glu Asn Val Lys Lys Ala Val Glu Gln Ile Arg Asn
145 150 155 160

Ile Leu Lys Gln Gly Ile Glu Thr Pro Glu Asp Gln Asn Asp Leu Arg
165 170 175

Lys Met Gln Leu Arg Glu Leu Ala Arg Leu Asn Gly Thr Leu Arg Glu
180 185 190

Asp Asp Asn Arg Ile Leu Arg Pro Trp Gln Ser Ser Glu Thr Arg Ser
195 200 205

Ile Thr Asn Thr Thr Val Cys Thr Lys Cys Gly Gly Ala Gly His Ile
210 215 220

Ala Ser Asp Cys Lys Phe Gln Arg Pro Gly Asp Pro Gln Ser Ala Gln
225 230 235 240

Asp Lys Ala Arg Met Asp Lys Glu Tyr Leu Ser Leu Met Ala Glu Leu
245 250 255

Gly Glu Ala Pro Val Pro Ala Ser Val Gly Ser Thr Ser Gly Pro Ala
260 265 270

Arg Lys Gln His Ser Leu Leu Lys Arg Leu Arg Lys Ala Lys Lys Glu
20 25 30

Ala Pro Pro Met Glu Lys Pro Glu Val Val Lys Thr His Leu Arg Asp
35 40 45

Met Ile Ile Leu Pro Glu Met Val Gly Ser Met Val Gly Val Tyr Asn
50 55 60

Gly Lys Thr Phe Asn Gln Val Glu Ile Lys Pro Glu Met Ile Gly His
65 70 75 80

Tyr Leu Gly Glu Phe Ser Ile Thr Tyr Lys Pro Val Lys His Gly Arg
85 90 95

Pro Gly Ile Gly Ala Thr His Ser Ser Arg Phe Ile Pro Leu Lys
100 105 110

<210> 1444
<211> 531
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (6)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (446)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (474)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (502)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (504)
<223> Xaa equals any of the naturally occurring L-amino acids

625 630 635 640

Lys Leu Val Gln Cys Val Asp Ala Phe Glu Glu Lys Ala Asn Ile Val
645 650 655

Met Val Leu Glu Ile Val Ser Gly Gly Glu Leu Phe Glu Arg Ile Ile
660 665 670

Asp Glu Asp Phe Glu Leu Thr Glu Arg Glu Xaa Ile Lys Tyr Met Arg
675 680 685

Gln Ile Ser Glu Gly Val Glu Tyr Ile His Lys Gln Gly Ile Val His
690 695 700

Leu Asp Leu Lys Pro Glu Asn Ile Met Cys Val Asn Lys Thr Gly Thr
705 710 715 720

Arg Ile Lys Leu Ile Asp Phe Gly Leu Ala Arg Arg Leu Glu Asn Ala
725 730 735

Gly Ser Leu Lys Val Leu Phe Gly Thr Pro Glu Phe Val Ala Pro Glu
740 745 750

Val Ile Asn Tyr Glu Pro Ile Gly Tyr Ala Thr Asp Met Trp Ser Ile
755 760 765

Gly Val Ile Cys Tyr Ile Leu Val Ser Gly Leu Ser Pro Phe Met Gly
770 775 780

Asp Asn Asp Asn Glu Thr Leu Ala Asn Val Thr Ser Ala Thr Trp Asp
785 790 795 800

Phe Asp Asp Glu Ala Phe Asp Glu Ile Ser Asp Asp Ala Lys Asp Phe
805 810 815

Ile Ser Asn Leu Leu Lys Lys Asp Met Lys Asn Arg Leu Asp Cys Thr
820 825 830

His Ala Phe Ser Ile His Gly
835

<210> 1443
<211> 111
<212> PRT
<213> Homo sapiens

<400> 1443
Cys Ser Cys Thr Val Arg Ala Arg Arg Arg Leu Asn Arg Gly Leu Arg
1 5 10 15

355 360 365

Lys Val Arg Ala Gly Glu Ser Val Glu Leu Phe Gly Lys Val Thr Gly
370 375 380

Thr Gln Pro Ile Thr Cys Thr Trp Met Lys Phe Arg Lys Gln Ile Gln
385 390 395 400

Glu Ser Glu His Met Lys Val Glu Asn Ser Glu Asn Gly Ser Lys Leu
405 410 415

Thr Ile Leu Ala Ala Arg Gln Glu His Cys Gly Cys Tyr Thr Leu Leu
420 425 430

Val Glu Asn Lys Leu Gly Ser Arg Gln Ala Gln Val Asn Leu Thr Val
435 440 445

Val Asp Lys Pro Asp Pro Pro Ala Gly Thr Pro Cys Ala Ser Asp Ile
450 455 460

Arg Ser Ser Ser Leu Thr Leu Ser Trp Tyr Gly Ser Ser Tyr Asp Gly
465 470 475 480

Gly Ser Ala Val Gln Ser Tyr Ser Ile Glu Ile Trp Asp Ser Ala Asn
485 490 495

Lys Thr Trp Lys Glu Leu Ala Thr Cys Arg Ser Thr Ser Phe Asn Val
500 505 510

Gln Asp Leu Leu Pro Asp His Glu Tyr Lys Phe Arg Val Arg Ala Ile
515 520 525

Asn Val Tyr Gly Thr Ser Glu Pro Ser Gln Glu Ser Glu Leu Thr Thr
530 535 540

Val Gly Glu Lys Pro Glu Glu Pro Lys Asp Glu Val Glu Val Ser Asp
545 550 555 560

Asp Asp Glu Lys Glu Pro Glu Val Asp Tyr Arg Thr Val Thr Ile Asn
565 570 575

Thr Glu Gln Lys Val Ser Asp Phe Tyr Asp Ile Glu Glu Arg Leu Gly
580 585 590

Ser Gly Lys Phe Gly Gln Val Phe Arg Leu Val Glu Lys Lys Thr Arg
595 600 605

Lys Val Trp Ala Gly Lys Phe Phe Lys Ala Tyr Ser Ala Lys Glu Lys
610 615 620

Glu Asn Ile Arg Gln Glu Ile Ser Ile Met Asn Cys Leu His His Pro

85 90 95

Pro Ala Thr Pro Asp Phe Arg Ser Val Leu Gly Gly Lys Lys Lys Leu
100 105 110

Pro Ala Glu Asn Gly Ser Ser Ser Ala Glu Thr Leu Asn Ala Lys Ala
115 120 125

Val Glu Ser Ser Lys Pro Leu Ser Asn Ala Gln Pro Ser Gly Pro Leu
130 135 140

Lys Pro Val Gly Asn Ala Lys Pro Ala Glu Thr Leu Lys Pro Met Gly
145 150 155 160

Asn Ala Lys Pro Ala Glu Thr Leu Lys Pro Met Gly Asn Ala Lys Pro
165 170 175

Asp Glu Asn Leu Lys Ser Ala Ser Lys Glu Glu Leu Lys Lys Asp Val
180 185 190

Lys Asn Asp Val Asn Cys Lys Arg Gly His Ala Gly Thr Thr Asp Asn
195 200 205

Glu Lys Arg Ser Glu Ser Gln Gly Thr Ala Pro Ala Phe Lys Gln Lys
210 215 220

Leu Gln Asp Val His Val Ala Glu Gly Lys Lys Leu Leu Leu Gln Cys
225 230 235 240

Gln Val Ser Ser Asp Pro Pro Ala Thr Ile Ile Trp Thr Leu Asn Gly
245 250 255

Lys Thr Leu Lys Thr Thr Lys Phe Ile Ile Leu Ser Gln Glu Gly Ser
260 265 270

Leu Cys Ser Val Ser Ile Glu Lys Ala Leu Pro Glu Asp Arg Gly Leu
275 280 285

Tyr Lys Xaa Val Ala Lys Xaa Asp Ala Gly Gln Ala Glu Cys Ser Cys
290 295 300

Gln Val Thr Val Asp Asp Ala Pro Ala Ser Glu Asn Thr Lys Ala Pro
305 310 315 320

Glu Met Lys Ser Arg Arg Pro Lys Ser Ser Leu Pro Pro Val Leu Gly
325 330 335

Thr Glu Ser Asp Ala Thr Val Lys Lys Lys Pro Ala Pro Lys Thr Pro
340 345 350

Pro Lys Ala Ala Met Pro Pro Gln Ile Ile Gln Phe Pro Glu Asp Gln

Lys Asn Gln Glu Arg Gly Ala Leu Leu Thr Thr His Tyr Met Ser Glu
65 70 75 80

Ala Lys Ser Leu Cys Asp Arg Val Ala Ile Met Val Ser Gly Thr Leu
85 90 95

Arg Cys Ile Gly Ser Ile Gln Gln Leu Lys Ser Leu Val Lys Ile Ile
100 105 110

Tyr

<210> 1442
<211> 839
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (291)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (295)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (683)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1442
Ala Glu His Trp Gly Ala Ile Pro Pro Ala Gly Gly Gly Ala Val Gly
1 5 10 15

Ile Ser Glu Thr Phe Leu Gly Lys Lys Val Arg Thr Lys Thr Leu Ser
20 25 30

Glu Asp Asp Leu Lys Glu Ile Pro Ala Glu Gln Met Asp Phe Arg Ala
35 40 45

Asn Leu Gln Arg Gln Val Lys Pro Lys Thr Val Ser Glu Glu Glu Arg
50 55 60

Lys Val His Ser Pro Gln Gln Val Asp Phe Arg Ser Val Leu Ala Lys
65 70 75 80

Lys Gly Thr Ser Lys Thr Pro Val Pro Glu Lys Val Pro Pro Pro Lys

Pro Tyr Val Gly Lys Glu Leu Asn Met Ile Ile Met Leu Pro Asp Glu
305 310 315 320

Thr Thr Asp Leu Arg Thr Val Glu Lys Glu Leu Thr Tyr Glu Lys Phe
325 330 335

Val Glu Trp Thr Arg Leu Asp Met Met Asp Glu Glu Glu Val Glu Val
340 345 350

Ser Leu Pro Arg Phe Lys Leu Glu Glu Ser Tyr Asp Met Glu Ser Val
355 360 365

Leu Arg Asn Leu Gly Met Thr Asp Ala Phe Glu Leu Gly Lys Ala Asp
370 375 380

Phe Ser Gly Met Ser Gln Thr Asp Leu Ser Leu Ser Lys Val Val His
385 390 395 400

Lys Ser Phe Val Glu Val Asn Glu Glu Gly Thr Glu Ala Ala Ala Ala
405 410 415

Thr Ala Ala Ile Met Met Met Arg Cys Ala Arg Phe Val Pro Arg Phe
420 425 430

Cys Ala Asp His Pro Phe Leu Phe Phe Ile Gln His Ser Lys Thr Asn
435 440 445

Gly Ile Leu Phe Cys Gly Arg Phe Ser Ser Pro
450 455

<210> 1441
<211> 113
<212> PRT
<213> Homo sapiens

<400> 1441
Leu Val Glu Ala Leu Lys Leu Gln Glu Gln Leu Lys Ala Pro Val Lys
1 5 10 15

Thr Leu Ser Glu Gly Ile Lys Arg Lys Leu Cys Phe Val Leu Ser Ile
20 25 30

Leu Gly Asn Pro Ser Val Val Leu Leu Asp Glu Leu Phe Thr Gly Met
35 40 45

Asp Pro Glu Gly Gln Gln Gln Met Trp Gln Ile Leu Gln Ala Thr Ile
50 55 60

Arg Pro Ala Ser Pro Ser Ala Leu Arg Thr Gly Asp Gly Ser Ser Arg
35 40 45

Pro Gly Thr Pro Pro Ala Ser Pro Arg Val Phe Glu Val Arg Gly Gly
50 55 60

Ser Gly Ala Ser Ala Arg Arg Ser Ala Arg Ser Leu Pro Ala Leu Glu
65 70 75 80

Ser Ala Ile Met Asp Val Leu Ala Glu Ala Asn Gly Thr Phe Ala Leu
85 90 95

Asn Leu Leu Lys Thr Leu Gly Lys Asp Asn Ser Lys Asn Val Phe Phe
100 105 110

Ser Pro Met Ser Met Ser Cys Ala Leu Ala Met Val Tyr Met Gly Ala
115 120 125

Lys Gly Asn Thr Ala Ala Gln Met Ala Gln Ile Leu Ser Phe Asn Lys
130 135 140

Ser Gly Gly Gly Gly Asp Ile His Gln Gly Phe Gln Ser Leu Leu Thr
145 150 155 160

Glu Val Asn Lys Thr Gly Thr Gln Tyr Leu Leu Arg Met Ala Asn Arg
165 170 175

Leu Phe Gly Glu Lys Ser Cys Asp Phe Leu Ser Ser Phe Arg Asp Ser
180 185 190

Cys Gln Lys Phe Tyr Gln Ala Glu Met Glu Glu Leu Asp Phe Ile Ser
195 200 205

Ala Val Glu Lys Ser Arg Lys His Ile Asn Thr Trp Val Ala Glu Lys
210 215 220

Thr Glu Gly Lys Ile Ala Glu Leu Leu Ser Pro Gly Ser Val Asp Pro
225 230 235 240

Leu Thr Arg Leu Val Leu Val Asn Ala Val Tyr Phe Arg Gly Asn Trp
245 250 255

Asp Glu Gln Phe Asp Lys Glu Asn Thr Glu Glu Arg Leu Phe Lys Val
260 265 270

Ser Lys Asn Glu Glu Lys Pro Val Gln Met Met Phe Lys Gln Ser Thr
275 280 285

Phe Lys Lys Thr Tyr Ile Gly Glu Ile Phe Thr Gln Ile Leu Val Leu
290 295 300

130 135 140

Glu Leu Pro Gly Glu Ser Asp Arg Ser Ala Val Glu Thr Ala Asp Glu
145 150 155 160

Gly Arg Val Asp Ser Ala Met Glu Thr Ser Met Met Ser Val Gln Glu
165 170 175

Asn Ile His Met Leu Ser Glu Glu Lys Gln Arg Ile Met Leu Leu Glu
180 185 190

Arg Thr Leu Gln Leu Lys Glu Glu Glu Asn Lys Arg Leu Asn Gln Arg
195 200 205

Leu Met Ser Gln Ser Met Ser Ser Val Ser Ser Arg His Ser Glu Lys
210 215 220

Ile Ala Ile Arg Asp Phe Gln Val Gly Asp Leu Val Leu Ile Ile Leu
225 230 235 240

Asp Glu Arg His Asp Asn Tyr Val Leu Phe Thr Val Ser Pro Thr Leu
245 250 255

Tyr Phe Leu His Ser Glu Ser Leu Pro Ala Leu Asp Leu Lys Pro Gly
260 265 270

Glu Gly Ala Ser Gly Ala Ser Arg Arg Pro Trp Val Leu Gly Lys Val
275 280 285

Met Glu Lys Glu Tyr Cys Gln Ala Lys Lys Ala Gln Asn Arg Phe Lys
290 295 300

Val Pro Leu Gly Thr Lys Phe Tyr Arg Val Lys Ala Val Ser Trp Asn
305 310 315 320

Lys Lys Val

<210> 1440
<211> 459
<212> PRT
<213> Homo sapiens

<400> 1440
Thr Arg Trp Trp Gly Pro Val Leu Trp Ser Lys Ser Arg Pro Pro Gly
1 5 10 15

Arg Thr Arg Gly Pro Ser Gly Trp Arg Val Gly Leu Thr Arg Thr Ser
20 25 30

Glu Met Glu Arg Thr Lys Glu Tyr Ser Ser Cys Leu Thr Phe Leu Pro
35 40 45

Thr Ala Asp Ile Val Gln Ala Arg Val Met Glu Glu Leu Asn Leu Leu
50 55 60

Ala Ser Gln Ala Ala Pro Ile Pro Thr Ser Gln Cys Thr Ala Pro Pro
65 70 75 80

His Leu Phe Ser Pro Leu Ser Leu Thr Ser Pro Phe Ile Met Ser His
85 90 95

Lys Ser Gly Thr Val Gly Ser His Tyr Asn Leu Leu Cys His Arg Asp
100 105 110

Ser Ile Phe Leu Ile Ser Asn His Val Ser
115 120

<210> 1439
<211> 323
<212> PRT
<213> Homo sapiens

<400> 1439
Phe Val Ser Pro Ala Ile Asp Ser Thr Arg Gly Asp Ser Ser Ser Leu
1 5 10 15

Val Ala Glu Leu Gln Glu Lys Leu Gln Glu Glu Lys Ala Lys Phe Leu
20 25 30

Glu Gln Leu Glu Glu Gln Glu Lys Arg Lys Asn Glu Glu Met Gln Asn
35 40 45

Val Arg Thr Ser Leu Ile Ala Glu Gln Gln Thr Asn Phe Asn Thr Val
50 55 60

Leu Thr Arg Glu Lys Met Arg Lys Glu Asn Ile Ile Asn Asp Leu Ser
65 70 75 80

Asp Lys Leu Lys Ser Thr Met Gln Gln Gln Glu Arg Asp Lys Asp Leu
85 90 95

Ile Glu Ser Leu Ser Glu Asp Arg Ala Arg Leu Leu Glu Glu Lys Lys
100 105 110

Lys Leu Glu Glu Glu Val Ser Lys Leu Arg Ser Ser Ser Phe Val Pro
115 120 125

Ser Pro Tyr Val Ala Thr Ala Pro Glu Leu Tyr Gly Ala Cys Ala Pro

<213> Homo sapiens

<220>
<221> SITE
<222> (20)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1437
Gln Gly Ala Leu Gly Ser Pro Val Pro Val Ala Val Ala Pro Leu Thr
1 5 10 15

Pro Pro Ser Xaa Cys Pro Ala Pro Pro Leu Arg Pro Pro His Thr Pro
20 25 30

Leu Ala Leu Thr Thr Cys Ile Ser Pro Ala Cys Val His Pro Pro Gly
35 40 45

Trp Leu Thr His Ser His Ser His Thr Gln Ile Ser Gly Thr Asn Gly
50 55 60

Pro Arg Val Leu Arg Thr Pro Ala Gln Gly Leu Cys Arg Ser Leu Pro
65 70 75 80

His Ala Phe Pro Ser Leu Thr Lys Pro Pro Ala Ala Ser Phe Lys Leu
85 90 95

Gly Ala Pro Ala Leu Gly Leu Ser Cys Ala Leu Phe Phe Phe Phe Phe
100 105 110

Phe

<210> 1438
<211> 122
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (16)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1438
Phe Leu His Thr Phe Asn Cys Ser Trp Ser Leu Thr Ser Pro Gly Xaa
1 5 10 15

Arg Asp Val Leu Lys Gly Ser Gln Leu Trp Gln Val Thr Asp Ser Trp
20 25 30

<210> 1435
<211> 46
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (45)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1435
Ala Gly Ala Gln Trp His Asn His Ser Ser Leu Gln Pro Trp Asn Ser
1 5 10 15

Gln Ala Gln Val Ile Leu Pro Ser Ala Pro Ala Arg Val Ala Gly Thr
20 25 30

Pro Gly Met His His Tyr Asn Gln Leu Ile Phe Phe Xaa Phe
35 40 45

<210> 1436
<211> 95
<212> PRT
<213> Homo sapiens

<400> 1436
Asn Ser Thr Met Ala Tyr Arg Gly Gln Gly Gln Lys Val Gln Lys Val
1 5 10 15

Met Val Gln Pro Ile Asn Leu Ile Phe Arg Tyr Leu Gln Asn Arg Ser
20 25 30

Arg Ile Gln Val Trp Leu Tyr Glu Gln Val Asn Met Arg Ile Glu Gly
35 40 45

Cys Ile Ile Gly Phe Asp Glu Tyr Met Asn Leu Val Leu Asp Asp Ala
50 55 60

Glu Glu Ile His Ser Lys Thr Lys Ser Arg Lys Gln Leu Gly Arg Ile
65 70 75 80

Met Leu Lys Gly Asp Asn Ile Thr Leu Leu Gln Ser Val Ser Asn
85 90 95

<210> 1437
<211> 113
<212> PRT

100 105 110

Gly Asp Asn Pro Gly Pro Gln Ala Ala Glu Gln Gly Thr Asp Thr Ala
115 120 125

Val Leu Arg Ile Gln Thr Arg Ser Phe Leu Lys Trp Thr Leu Ile Asp
130 135 140

Ser Asn Thr Cys Phe Tyr
145 150

<210> 1434
<211> 145
<212> PRT
<213> Homo sapiens

<400> 1434
His Glu Val Val Glu His Asn Pro Ile Ser Val Leu Asp Ser Pro Ser
1 5 10 15

Ser Asp Cys Phe Ala Glu Trp Pro Gly Glu Leu Gly Arg Gly Trp Met
20 25 30

Asp Arg Asn Lys His Thr Glu Ser Glu Val Gln Gly Arg Trp Ser Ser
35 40 45

Phe Ser Leu Cys Arg Val Arg Met Lys Leu Cys Ser Gly Pro Trp Lys
50 55 60

Cys Pro Trp Gln Lys Pro Asn Pro Arg Phe Gln Gly Thr Leu Pro Ser
65 70 75 80

Cys Glu Arg Glu Arg Asn Cys Gly Gln Gly Leu Gly Leu Glu Ala Gly
85 90 95

Arg Trp Asp His Ser Asp Thr Met Gln Asp Asn Arg Trp Gln Leu Gly
100 105 110

Leu Lys Ile Lys Met Asn Tyr Met Ile Phe Asp Lys Leu Phe Asn Pro
115 120 125

Trp Ser Leu His Phe Leu Tyr Lys Thr Gly Thr Ile Leu Ile Pro Thr
130 135 140

Leu
145

```
Arg Asn Leu Leu Glu Glu Arg Lys Ser Asp Gln Leu Gly Leu Pro Gln
                85                  90                  95

Thr Leu Gln Gln Glu Phe Ser Leu Ile Asn Val Gln Ile Arg Asn Val
            100                 105                 110

Asn Xaa Glu Met Asp Ala Ala Asp Arg Ser Cys Thr Val Ser Val His
        115                 120                 125

Cys Ser Asn His Arg Val Lys Met Leu Val Lys Phe Pro Ala Gln Tyr
    130                 135                 140

Pro Asn Asn Ala Ala Pro Ser Phe Gln Phe Ile Asn Pro Thr Thr Ile
145                 150                 155                 160

Thr Ser Thr Met Lys Ala Lys Leu Leu Lys Ile Leu Lys Asp Thr Ala
                165                 170                 175

Leu Gln Lys Val Lys Arg Gly Gln Ser Cys Leu Glu Pro Cys Leu Arg
            180                 185                 190

Xaa Ser Ser Pro Ala Leu Ser Pro Xaa
        195                 200


<210> 1433
<211> 150
<212> PRT
<213> Homo sapiens

<400> 1433
Thr Val Val Ala Trp Glu Gly Gly Tyr His Thr Phe Ser Thr Cys Leu
  1               5                  10                  15

Thr Val Ser Trp Leu Gln Glu Asp Gln Tyr Asp His Leu Asp Ala Ala
             20                  25                  30

Asp Met Thr Lys Val Glu Lys Ser Thr Asn Glu Ala Met Glu Trp Met
         35                  40                  45

Asn Asn Lys Leu Asn Leu Gln Asn Lys Gln Ser Leu Thr Met Asp Pro
     50                  55                  60

Val Val Lys Ser Lys Glu Ile Glu Ala Lys Ile Lys Glu Leu Thr Ser
 65                  70                  75                  80

Thr Cys Ser Pro Ile Ile Ser Lys Pro Lys Pro Lys Val Glu Pro Pro
                 85                  90                  95

Lys Glu Glu Gln Lys Asn Ala Glu Gln Asn Gly Pro Val Asp Gly Gln
```

Gly Arg Leu Pro Xaa Xaa Lys Met Glu Ala Gln Ser Pro Tyr Tyr Gln
35 40 45

Thr Val Val Val Ser Arg Gly Arg Gly Glu Met Phe Ile Gly His Ser
50 55 60

Leu Ser Trp Gly Val Ile Phe Ile Thr Ile His Val Asn Cys Thr Leu
65 70 75 80

Val

<210> 1432
<211> 201
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (114)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (193)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (201)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1432
Thr His Trp Ser Lys Asp Tyr Gln Leu Val Thr Trp Ser Arg Asp Gln
1 5 10 15

Thr Leu Arg Met Trp Arg Val Asp Ser Gln Met Gln Arg Leu Cys Ala
20 25 30

Asn Asp Ile Leu Asp Gly Val Asp Glu Phe Ile Glu Ser Ile Ser Leu
35 40 45

Leu Pro Glu Pro Glu Lys Thr Leu His Thr Glu Asp Thr Asp His Gln
50 55 60

His Thr Ala Ser His Gly Glu Glu Glu Ala Leu Lys Glu Asp Pro Pro
65 70 75 80

85 90

<210> 1430
<211> 95
<212> PRT
<213> Homo sapiens

<400> 1430
Leu Ser Lys Gln Arg Pro Ala Val Gly Val His His Ala Phe His Leu
1 5 10 15

Pro His Cys Phe Phe Ala Ser Leu Leu Glu Ser Pro Val Ser Pro Arg
20 25 30

Leu Ala Met Asp Pro Asn Cys Ser Cys Ala Ala Gly Val Ser Cys Thr
35 40 45

Cys Ala Gly Ser Cys Lys Cys Lys Glu Cys Lys Cys Thr Ser Cys Lys
50 55 60

Lys Ser Cys Cys Ser Cys Cys Pro Val Gly Cys Ser Lys Cys Ala Gln
65 70 75 80

Gly Cys Val Cys Lys Gly Ala Ser Glu Lys Cys Ser Cys Cys Asp
85 90 95

<210> 1431
<211> 81
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (37)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (38)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1431
Pro Arg His Leu Ile Thr Ile Ser Tyr Val Val Ala Val Arg Asn Ala
1 5 10 15

Phe Gln Val Gly Thr Trp Asp Pro Glu Ser Thr Phe Ala Pro Cys Gly
20 25 30

35 40 45

Tyr Leu Met Thr Asn Tyr Glu Ser Xaa Pro Pro Ser Pro Gln Tyr Lys
50 55 60

Lys Ile Ile Cys Met Gly Ala Lys Glu Asn Gly Leu Pro Leu Glu Tyr
65 70 75 80

Gln Glu Lys Leu Lys Ala Ile Glu Pro Asn Asp Tyr Thr Gly Lys Val
85 90 95

Ser Glu Glu Ile Glu Asp Ile Ile Lys Lys Gly Glu Thr Gln Thr Leu
100 105 110

<210> 1429
<211> 94
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (7)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (80)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1429
Pro Gly Thr His Val Ser Xaa Pro His Phe Leu Trp Gly Cys Ala Ser
1 5 10 15

Leu Arg Val Ala Asn Arg Met Ser Ser Val Gln Trp Trp Ser Gln Asp
20 25 30

Ser Val Cys Arg Ala Asp Phe Leu Ser Leu Leu Lys Thr Leu Asn Thr
35 40 45

Ala Val Phe Ser Ser Gln Gln Arg Asn Lys Ile Ser Leu Ser Asp Asn
50 55 60

Asp Asn Asn Lys Gln Ser Ile Ala Ser Thr Ala Phe Thr Ala Tyr Xaa
65 70 75 80

Lys Thr Tyr Tyr Val Pro Gly Thr Ser Thr Asp Phe Asn Leu

35 40 45

Arg Ala Ala Gln Glu Xaa Arg Thr Arg Arg Leu Ala Arg His Gln Thr
50 55 60

His Pro Thr Gln Arg Arg Gly Pro Gln Ala Arg Pro Val Val Pro Ser
65 70 75 80

Arg Trp His Cys Ser Ser Pro Leu Leu Gln Val Gln Arg Pro His Arg
85 90 95

Asn Thr Arg Ala Cys Ala Pro Glu Pro Ser Phe Arg Pro Phe Leu His
100 105 110

Val Pro Thr Trp Asp Ala Glu Cys Ser Gly Ala Arg Thr Pro Ser Thr
115 120 125

Ala Trp Thr Ser Ala Ala Val Lys Leu Arg Glu Ala Cys Leu Ser Gly
130 135 140

Pro Gly Ser Gly Ser His Gln Leu Leu Leu Leu Thr Pro Arg Ser Lys
145 150 155 160

Arg Arg Thr Gly Gly Gly
165

<210> 1428
<211> 112
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (20)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (57)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1428
Gln Arg Gly Ser Thr Ser Glu Thr Pro Arg Arg Arg Ser Ser Val Trp
1 5 10 15

Pro Ala Cys Xaa Gln Glu Gly Val Lys Ser Gly Met Tyr Val Val Ile
20 25 30

Glu Val Lys Val Ala Thr Gln Glu Gly Lys Glu Ile Thr Cys Arg Ser

145 150 155 160

Ile Cys Lys Ser Phe Leu Tyr Ser Ala Ala Lys Phe Asp Thr Gln Gly
165 170 175

Lys Ala Phe Val Lys Glu Ser Leu Lys Cys Ile Ala Asn Gly Val Thr
180 185 190

Ser Lys Val Phe Leu Ala Ile Arg Arg Cys Ser Thr Phe Gln Arg Met
195 200 205

Ile Ala Glu Val Gln Glu Glu Cys Tyr Ser Lys Leu Asn Val Cys Ser
210 215 220

Ile Ala Lys Arg Asn Pro Glu Ala Ile Thr Glu Val Val Gln Leu Pro
225 230 235 240

Asn His Phe Ser Asn Arg Tyr Tyr Asn Arg Leu Val Arg Ser Leu Leu
245 250 255

Glu Cys Asp Glu Asp Thr Val Ser Thr Ile Arg Asp Ser Leu Met Glu
260 265 270

Xaa Ile Xaa Ala
275

<210> 1427
<211> 166
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (36)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (54)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1427
Cys Asn Ser Arg Ser Gln Gly Leu Ala Leu Thr Gln Val Ala Ser Arg
1 5 10 15

Ile Pro Val Gly Lys Arg Pro Ala Thr Ser Gly Leu Glu Leu Ala Cys
20 25 30

Val Pro Pro Xaa Pro Ala Pro Pro Thr Ser Arg Val Gln Cys Trp Ala

<210> 1426
<211> 276
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (43)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (273)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (275)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1426
```
Cys Lys Lys Gln Arg Leu Gln Gln Gln Gln Gln Gln Arg Arg Trp Gln
  1               5                  10                  15

Gln Gln Gln Gln Arg Arg Gln Gln Gln Gln Gln Arg Arg His Arg Trp
             20                  25                  30

Gln Gln Gln His His Gln Gln Gln Gln Gln Xaa Lys Ile Leu Ile Lys
         35                  40                  45

Ser Ser Pro Lys Leu Ser Val Tyr Pro Asp Pro His Leu His Ser Ser
     50                  55                  60

Gln Glu Arg Glu Arg Gly Lys Gly Gly Arg Lys Lys Lys Lys Pro Asn
 65                  70                  75                  80

Asn Leu Ala Glu Thr Ser Gln Arg Met Leu Gln Asn Ser Ala Val Leu
                 85                  90                  95

Leu Val Leu Val Ile Ser Ala Ser Ala Thr His Glu Ala Glu Gln Asn
            100                 105                 110

Asp Ser Val Ser Pro Arg Lys Ser Arg Val Ala Ala Gln Asn Ser Ala
        115                 120                 125

Glu Val Val Arg Cys Leu Asn Ser Ala Leu Gln Val Gly Cys Gly Ala
    130                 135                 140

Phe Ala Cys Leu Glu Asn Ser Thr Cys Asp Thr Asp Gly Met Tyr Asp
```

Cys Ser Ile Ser Gln Ser Leu Leu Ser Ser Val Val Asn Met Phe Gln
50 55 60

Met Thr Phe Ser Trp Lys Lys Asn Leu Tyr Asn Ile Val Glu Cys Glu
65 70 75 80

Gly

<210> 1425
<211> 172
<212> PRT
<213> Homo sapiens

<400> 1425
Met Gly Gly Asp Ala Gly Asp Arg Glu Pro Gly Pro Ala Ala Arg Ser
1 5 10 15

Leu Gly Glu Gly Gln Ala Gly Phe Ala Thr Ala Asp His Ser Gly Gln
20 25 30

Glu Arg Glu Thr Glu Lys Ala Met Asp Arg Leu Ala Arg Gly Thr Gln
35 40 45

Ser Ile Pro Asn Asp Ser Pro Ala Arg Gly Glu Gly Thr His Ser Glu
50 55 60

Glu Glu Gly Phe Ala Met Asp Glu Glu Asp Ser Asp Gly Glu Leu Asn
65 70 75 80

Thr Trp Glu Leu Ser Glu Gly Thr Asn Cys Pro Pro Lys Glu Gln Pro
85 90 95

Gly Asp Leu Phe Asn Glu Asp Trp Asp Ser Glu Leu Lys Ala Asp Gln
100 105 110

Gly Asn Pro Tyr Asp Ala Asp Asp Ile Gln Glu Ser Ile Ser Gln Glu
115 120 125

Leu Lys Pro Trp Val Cys Cys Ala Pro Gln Gly Asp Met Ile Tyr Asp
130 135 140

Pro Ser Trp His His Pro Pro Pro Leu Ile Pro Tyr Tyr Ser Lys Met
145 150 155 160

Val Phe Glu Thr Gly Gln Phe Asp Asp Ala Glu Asp
165 170

<400> 1423
Ser Phe Pro Tyr Leu Phe Leu Gln Ser Lys Asn Arg Trp Cys Phe Ala
1   5   10   15

Arg Glu Leu Val Lys Arg Tyr Gln Glu Lys Trp Asp Lys Leu Leu Leu
            20   25   30

Thr Ser Thr Glu Lys Ser His Val Asp Leu Phe Pro Lys Asp Ser Ile
        35   40   45

Ile Tyr Leu Thr Ala Asp Ser Pro Asn Val Met Thr Thr Phe Arg His
    50   55   60

Asp Lys Val Tyr Val Ile Gly Ser Phe Val Asp Lys Ser Met Gln Pro
65   70   75   80

Gly Thr Ser Leu Ala Lys Ala Lys Arg Leu Asn Leu Ala Thr Glu Cys
                85   90   95

Leu Pro Leu Asp Lys Tyr Leu Gln Trp Glu Ile Gly Asn Lys Asn Leu
            100   105   110

Thr Leu Asp Gln Met Ile Arg Ile Leu Leu Cys Leu Lys Asn Asn Gly
        115   120   125

Asn Trp Gln Glu Ala Leu Gln Phe Val Pro Lys Arg Lys His Thr Gly
    130   135   140

Phe Leu Glu Ile Ser Gln His Ser Gln Glu Phe Ile Asn Arg Leu Lys
145   150   155   160

Lys Ala Lys Thr

<210> 1424
<211> 81
<212> PRT
<213> Homo sapiens

<400> 1424
Glu Val Trp Leu Phe Met His Pro Ser Ser Arg Ala Leu Lys Leu His
1   5   10   15

Gly Leu Ile Lys Val Asp Ala Lys Gln Glu Arg Asn Lys Gln Lys Lys
            20   25   30

Lys Thr Ser Lys Met Phe Thr Lys Lys Leu Lys Gln Met Ser Ser Ala
        35   40   45

Leu Glu Leu Gln Ala Tyr Ala Asp Val Gln Ala Val Leu Ala Lys Tyr
85 90 95

Asp Asp Ile Ser Leu Pro Lys Ser Ala Thr Ile Cys Tyr Thr Ala Ala
100 105 110

Leu Leu Lys Ala Arg Ala Val Ser Asp Lys Phe Ser Xaa Glu Ala Ala
115 120 125

Ser Arg Arg Gly Leu Ser Thr Ala Glu Met Asn Ala Val Glu Ala Ile
130 135 140

His Arg Ala Val Glu Phe Asn Pro His Val Pro Lys Tyr Leu Leu Glu
145 150 155 160

Met Lys Ser Leu Ile Leu Pro Pro Glu His Ile Leu Lys Arg Gly Asp
165 170 175

Xaa Glu Ala Ile Ala Tyr Ala Phe Phe His Leu Ala His Trp Lys Arg
180 185 190

Val Glu Gly Ala Leu Asn Leu Leu His Cys Thr Trp Glu Gly Thr Phe
195 200 205

Arg Met Ile Pro Tyr Pro Leu Glu Lys Gly His Leu Phe Tyr Pro Tyr
210 215 220

Pro Ile Cys Thr Glu Thr Ala Asp Arg Glu Leu Leu Pro Ser Phe His
225 230 235 240

Glu Val Ser Val Tyr Pro Lys Lys Glu Leu Pro Phe Phe Ile Leu Phe
245 250 255

Thr Ala Gly Leu Cys Ser Phe Thr Ala Met Leu Ala Leu Leu Thr His
260 265 270

Gln Phe Pro Glu Leu Met Gly Val Phe Ala Lys Ala Phe Leu Ser Thr
275 280 285

Leu Phe Ala Pro Leu Asn Phe Val Met Glu Lys Val Glu Ser Ile Leu
290 295 300

Pro Ser Ser Leu Trp His Gln Leu Thr Arg Ile
305 310 315

<210> 1423
<211> 164
<212> PRT
<213> Homo sapiens

Ser Pro His Lys Glu Glu Ser Pro Lys Lys Thr Lys Thr Glu Glu Asp
210 215 220

Glu Thr Ser Glu Asp Ala Asn Cys Leu Ala Leu Ser Gly His Asp Lys
225 230 235 240

Thr Glu Ala Lys Glu Gln Leu Asp Thr Glu Thr Ser Thr Thr Gln Ser
245 250 255

Glu Thr Ile Gln Thr Ala Ala Ser Leu Leu Ala Ser Gln Lys Thr Ser
260 265 270

Ser Thr Asp Leu Ser Asp Ile Pro Ala Leu Pro Ala Asn Pro Ile Pro
275 280 285

Val Ile Lys Asn Ser Ile Lys Leu Arg Leu Asn Arg
290 295 300

<210> 1422
<211> 315
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (125)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (177)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1422
Asp Ser Pro Leu His Leu Tyr Gln Lys Asn Ala Arg Leu Lys Asn Val
1 5 10 15

Glu Phe Leu Leu Val Asn Arg Ile His Cys Gly Thr Arg His Gln Cys
20 25 30

Leu Gly Tyr Ile Lys Arg Arg Leu Ala Met Cys Ala Arg Arg Leu Gly
35 40 45

Arg Thr Arg Glu Ala Val Lys Met Met Arg Asp Leu Met Lys Glu Phe
50 55 60

Pro Leu Leu Ser Met Phe Asn Ile His Glu Asn Leu Leu Glu Ala Leu
65 70 75 80

His Ser Glu
145

<210> 1421
<211> 300
<212> PRT
<213> Homo sapiens

<400> 1421
Gly Leu Pro Ile Asn Cys Ile Cys Glu Arg Leu Asn Ile Ile Gly Glu
1 5 10 15

Ile Asn Thr Asp Thr Val Tyr Arg Gln Ala Ile Asn Ser Lys Met Phe
20 25 30

Glu Val Asp Met Lys Ile Ala Ala Met His Val Lys Arg Lys Gln Leu
35 40 45

His Gln Leu Leu Pro Asn His Val Leu Gln Lys Lys Lys Lys His Ser
50 55 60

Thr Glu Gly Val Lys Leu Thr Ala Leu Asn Asp Ser Ser Leu Asp Leu
65 70 75 80

Ser Met Asp Ser Asp Asn Ser Met Ser Val Pro Ser Pro Thr Ser Ala
85 90 95

Thr Lys Thr Ser Pro Leu Asn Ser Ser Gly Ser Ser Gln Gly Arg Asn
100 105 110

Ser Pro Ala Pro Ala Val Thr Ala Ala Ser Val Thr Asn Ile Gln Ala
115 120 125

Thr Glu Val Ser Val Pro Gln Val Asn Ser Ser Glu Ser Ser Gly Gly
130 135 140

Thr Ser Ser Glu Ser Ile Pro Gln Thr Ala Thr Gln Pro Ala Ile Ser
145 150 155 160

Pro Pro Pro Lys Pro Thr Val Ser Arg Val Val Ser Ser Thr Arg Leu
165 170 175

Val Asn Pro Pro Pro Arg Ser Ser Gly Asn Ala Ala Thr Ser Gly Asn
180 185 190

Ala Ala Thr Lys Ile Pro Thr Pro Ile Val Gly Val Lys Arg Thr Ser
195 200 205

275 280

<210> 1420
<211> 147
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (10)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (104)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (105)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1420
Phe Pro Gly Thr Gly Ser Asp Gly Gly Xaa Pro Glu Thr Val Asp Ser
1 5 10 15

Gly Arg Ser Glu Pro Pro Gly Ala Val Val Leu Pro Arg Leu Arg Glu
20 25 30

Val Gly Arg Glu Arg Thr Trp Arg Pro Gly Ser Met Ala Gly Leu Glu
35 40 45

Leu Leu Ser Asp Gln Gly Tyr Arg Val Asp Gly Arg Arg Ala Gly Glu
50 55 60

Leu Arg Lys Ile Gln Ala Arg Met Gly Val Phe Ala Gln Ala Asp Gly
65 70 75 80

Ser Ala Tyr Ile Glu Gln Gly Asn Thr Lys Ala Leu Ala Val Val Tyr
85 90 95

Gly Pro His Glu Ala Ser Gly Xaa Xaa Gly Trp Gly Ile Val Trp Pro
100 105 110

Trp Glu Leu Arg Gly Ser Arg Ala Glu Arg Trp Leu Gly Asp Leu Arg
115 120 125

Gly Lys Ala Ala Arg Leu Ile Tyr Thr Ala Met Leu Ser Thr Ala Ser
130 135 140

1 5 10 15

Leu Ala Gly Ser Arg Ala Arg Ala Ala Arg Thr Val Leu Gly Gln Val
20 25 30

Val Leu Pro Gly Glu Glu Leu Leu Leu Pro Glu Gln Glu Asp Ala Glu
35 40 45

Gly Pro Gly Gly Ala Val Glu Arg Pro Leu Ser Leu Asn Ala Arg Ala
50 55 60

Cys Ser Arg Val Arg Val Val Cys Gly Pro Gly Leu Arg Arg Cys Gly
65 70 75 80

Asp Arg Leu Leu Val Thr Lys Cys Gly Arg Leu Arg His Lys Glu Pro
85 90 95

Gly Ser Gly Ser Gly Gly Gly Val Tyr Trp Val Asp Ser Gln Gln Lys
100 105 110

Arg Tyr Val Pro Val Lys Gly Asp His Val Ile Gly Ile Val Thr Ala
115 120 125

Lys Ser Gly Asp Ile Phe Lys Val Asp Val Gly Gly Ser Glu Pro Ala
130 135 140

Ser Leu Ser Tyr Leu Ser Phe Glu Gly Ala Thr Lys Arg Asn Arg Pro
145 150 155 160

Asn Val Gln Val Gly Asp Leu Ile Tyr Gly Gln Phe Val Val Ala Asn
165 170 175

Lys Asp Met Glu Pro Glu Met Val Cys Ile Asp Ser Cys Gly Arg Ala
180 185 190

Asn Gly Met Gly Val Ile Gly Gln Asp Gly Leu Leu Phe Lys Val Thr
195 200 205

Leu Gly Leu Ile Arg Lys Leu Leu Ala Pro Asp Cys Glu Ile Ile Gln
210 215 220

Glu Val Gly Lys Leu Tyr Pro Leu Glu Ile Val Phe Gly Met Asn Gly
225 230 235 240

Arg Ile Trp Val Lys Ala Lys Thr Ile Gln Gln Thr Leu Ile Leu Ala
245 250 255

Asn Ile Leu Glu Ala Cys Glu His Met Thr Ser Asp Gln Arg Lys Gln
260 265 270

Ile Phe Ser Arg Leu Ala Glu Ser

Asp Met Met Gln Lys Leu Ser Gly Gln Leu Ser Asp Ala Arg Asn Lys
50 55 60

Glu Asn Leu Gln Pro Gln Ser Ser Gly Val Gln Gly Gln Val Pro Ile
65 70 75 80

Ser Pro Glu Pro Leu Gln Arg Pro Glu Met Leu Lys Glu Glu Thr Arg
85 90 95

Ser Ser Ala Ala Ala Ala Ala Asp Thr Gln Asp Glu Ala Thr Gly Ala
100 105 110

Glu Glu Glu Leu Leu Pro Gly Val Asp Val Leu Leu Glu Val Phe Pro
115 120 125

Thr Cys Ser Val Glu Gln Ala Gln Trp Val Leu Ala Lys Ala Arg Gly
130 135 140

Asp Leu Glu Glu Ala Val Gln Met Leu Val Glu Gly Lys Glu Glu Gly
145 150 155 160

Pro Ala Ala Trp Glu Gly Pro Asn Gln Asp Leu Pro Arg Arg Leu Arg
165 170 175

Gly Pro Gln Lys Asp Glu Leu Lys Ser Phe Ile Leu Gln Lys Tyr Met
180 185 190

Met Val Asp Ser Ala Glu Asp Gln Lys Ile His Arg Pro Met Ala Pro
195 200 205

Lys Glu Ala Pro Lys Lys Leu Ile Arg Tyr Ile Asp Asn Gln Val Val
210 215 220

Ser Thr Lys Gly Glu Arg Phe Lys Asp Val Arg Asn Pro Glu Ala Glu
225 230 235 240

Glu Met Lys Ala Thr Tyr Ile Asn Leu Lys Pro Ala Arg Lys Tyr Arg
245 250 255

Phe His

<210> 1419
<211> 280
<212> PRT
<213> Homo sapiens

<400> 1419
Leu Val Glu Pro Ala Met Ala Glu Pro Ala Ser Val Ala Ala Glu Ser

<213> Homo sapiens

<220>
<221> SITE
<222> (17)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (75)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1417
Ala Leu Pro Val Met Thr Ala Ala Gly Thr Gly Trp Pro Glu Ala Gly
1 5 10 15

Xaa Leu Pro Glu Val Met Gly Asp Gly Leu Ala Asn Gln Ile Asn Asn
20 25 30

Pro Glu Val Glu Val Asp Ile Thr Lys Pro Asp Met Thr Ile Arg Gln
35 40 45

Gln Ile Met Gln Leu Lys Ile Met Thr Asn Arg Leu Arg Ser Leu Thr
50 55 60

Thr Ala Thr Thr Trp Thr Ser Arg Thr Pro Xaa Thr Thr Ala Ala Ala
65 70 75 80

Arg Ala Ala Val Met Ala Val Trp Met Thr Ser Ala Ala Gly Arg Ser
85 90 95

Ala Gly Arg Ala Pro Ala Pro Gly Arg Pro
100 105

<210> 1418
<211> 258
<212> PRT
<213> Homo sapiens

<400> 1418
Gly His Leu Leu Leu Cys Ala Trp Gly Pro Gly Gly Pro Gly Pro Leu
1 5 10 15

Gly Pro Ser Glu Glu Asn Phe Asp Met Glu Ala Phe Thr Glu Met Met
20 25 30

Glu Ala Tyr Val Pro Gly Phe Ala His Ile Pro Arg Gly Thr Ile Gly
35 40 45

<400> 1416

```
Ser Thr His Ala Ser Ala His Ala Ser Glu Pro Gly Gln Gly Gly Trp
  1               5                  10                  15

Pro Glu Val Pro Ala Glu Gly Ala Ser Arg Pro Cys Ala Ala Val Pro
             20                  25                  30

Gly Gly Gln Arg Gly Cys Pro Ala Cys Pro Leu Ala Gly Glu Arg Glu
         35                  40                  45

Leu Thr His Leu Leu Leu Pro Ala Ser Glu Gly Asp Thr Glu Pro Gln
     50                  55                  60

Val Thr Pro His His Gln Arg Arg Cys Leu Cys Leu Ser Asp Lys Tyr
 65                  70                  75                  80

Ser Gln Ala Cys His Pro Leu Gly Ser Lys Val Arg Arg Cys Arg Lys
                 85                  90                  95

Pro Gly Pro Arg Asp Arg Gln Leu Thr Arg Val Asp Lys Ser Pro Glu
            100                 105                 110

Met Trp Cys Ile Val Leu Phe Ser Leu Leu Ala Trp Val Tyr Ala Glu
        115                 120                 125

Pro Thr Met Tyr Gly Glu Ile Leu Ser Pro Asn Tyr Pro Gln Ala Tyr
    130                 135                 140

Pro Ser Glu Val Glu Lys Ser Trp Asp Ile Glu Val Pro Glu Gly Tyr
145                 150                 155                 160

Gly Ile His Leu Tyr Phe Thr His Leu Asp Ile Glu Leu Ser Glu Asn
                165                 170                 175

Cys Ala Tyr Asp Ser Val Gln Ile Ile Ser Gly Asp Thr Glu Glu Gly
            180                 185                 190

Arg Leu Cys Xaa Gln Arg Ser Ser Asn Asn Pro Xaa Leu Gln Leu Trp
        195                 200                 205

Lys Ser Ser Lys Ser His Thr Thr Asn Ser Lys Gly Gly Asn Pro Leu
    210                 215                 220

Phe Phe Leu Lys Lys Xaa
225                 230
```

<210> 1417
<211> 106
<212> PRT

435 440 445

Tyr Tyr Tyr Gly Pro Pro His Met Pro Pro Pro Thr Arg Gly Arg Gly
450 455 460

Arg Gly Gly Arg Gly Gly Tyr Gly Tyr Pro Pro Asp Tyr Tyr Gly Tyr
465 470 475 480

Glu Asp Tyr Tyr Asp Tyr Tyr Gly Tyr Asp Tyr His Asn Tyr Arg Gly
485 490 495

Gly Tyr Glu Asp Pro Tyr Tyr Gly Tyr Glu Asp Phe Gln Val Gly Ala
500 505 510

Arg Gly Arg Gly Gly Arg Gly Ala Arg Gly Ala Ala Pro Ser Arg Gly
515 520 525

Arg Gly Ala Ala Pro Pro Arg Gly Arg Ala Gly Tyr Ser Gln Arg Gly
530 535 540

Gly Pro Gly Ser Ala Arg Gly Val Arg Gly Ala Arg Gly Gly Ala Gln
545 550 555 560

Gln Gln Arg Gly Arg Gly Gln Gly Lys Gly Val Glu Ala Gly Pro Asp
565 570 575

Leu Leu Gln

<210> 1416
<211> 230
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (196)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (204)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (230)
<223> Xaa equals any of the naturally occurring L-amino acids

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                165                 170                 175

Val Gly Thr Glu Ile Phe Val Gly Lys Ile Pro Arg Asp Leu Phe Glu
            180                 185                 190

Asp Glu Leu Val Pro Leu Phe Glu Lys Ala Gly Pro Ile Trp Asp Leu
        195                 200                 205

Arg Leu Met Met Asp Pro Leu Thr Gly Leu Asn Arg Gly Tyr Ala Phe
    210                 215                 220

Val Thr Phe Cys Thr Lys Glu Ala Ala Gln Glu Ala Val Lys Leu Tyr
225                 230                 235                 240

Asn Asn His Glu Ile Arg Ser Gly Lys His Ile Gly Val Cys Ile Ser
                245                 250                 255

Val Ala Asn Asn Arg Leu Phe Val Gly Ser Ile Pro Lys Ser Lys Thr
            260                 265                 270

Lys Glu Gln Ile Leu Glu Glu Phe Ser Lys Val Thr Glu Gly Leu Thr
        275                 280                 285

Asp Val Ile Leu Tyr His Gln Pro Asp Asp Lys Lys Lys Asn Arg Gly
    290                 295                 300

Phe Cys Phe Leu Glu Tyr Glu Asp His Lys Thr Ala Ala Gln Ala Arg
305                 310                 315                 320

Arg Arg Leu Met Ser Gly Lys Val Lys Val Trp Gly Asn Val Gly Thr
                325                 330                 335

Val Glu Trp Ala Asp Pro Ile Glu Asp Pro Asp Pro Glu Val Met Ala
            340                 345                 350

Lys Val Lys Val Leu Phe Val Arg Asn Leu Ala Asn Thr Val Thr Glu
        355                 360                 365

Glu Ile Leu Glu Lys Ala Phe Ser Gln Phe Gly Lys Leu Glu Arg Val
    370                 375                 380

Lys Lys Leu Lys Asp Tyr Ala Phe Ile His Phe Asp Glu Arg Asp Gly
385                 390                 395                 400

Ala Val Lys Ala Met Glu Glu Met Asn Gly Lys Asp Leu Glu Gly Glu
                405                 410                 415

Asn Ile Glu Ile Val Phe Ala Lys Pro Pro Asp Gln Lys Arg Lys Glu
            420                 425                 430

Arg Lys Ala Gln Arg Gln Ala Ala Lys Asn Gln Met Tyr Asp Asp Tyr
```

Ala Arg Ser Leu Gln Pro Ser Val Leu Met Gln Leu Lys Leu Ser Asp
210 215 220

Gly Ser Ala Tyr Arg Phe Glu Val Pro Thr Ala Lys Phe Gln Glu Leu
225 230 235 240

Arg Tyr Ser Val Ala Leu Val Leu Lys Glu Met Ala Asp Leu Glu Lys
245 250 255

Arg Cys Glu Arg Arg Leu Gln Asp
260

<210> 1415
<211> 579
<212> PRT
<213> Homo sapiens

<400> 1415
Ala Ala Asp Arg Gly Arg Gly Pro Gly Ala His Arg Pro Ile Ser Gly
1 5 10 15

Asn Met Ala Thr Glu His Val Asn Gly Asn Gly Thr Glu Glu Pro Met
20 25 30

Asp Thr Thr Ser Ala Val Ile His Ser Glu Asn Phe Gln Thr Leu Leu
35 40 45

Asp Ala Gly Leu Pro Gln Lys Val Ala Glu Lys Leu Asp Glu Ile Tyr
50 55 60

Val Ala Gly Leu Val Ala His Ser Asp Leu Asp Glu Arg Ala Ile Glu
65 70 75 80

Ala Leu Lys Glu Phe Asn Glu Asp Gly Ala Leu Ala Val Leu Gln Gln
85 90 95

Phe Lys Asp Ser Asp Leu Ser His Val Gln Asn Lys Ser Ala Phe Leu
100 105 110

Cys Gly Val Met Lys Thr Tyr Arg Gln Arg Glu Lys Gln Gly Thr Lys
115 120 125

Val Ala Asp Ser Ser Lys Gly Pro Asp Glu Ala Lys Ile Lys Ala Leu
130 135 140

Leu Glu Arg Thr Gly Tyr Thr Leu Asp Val Thr Thr Gly Gln Arg Lys
145 150 155 160

Tyr Gly Gly Pro Pro Pro Asp Ser Val Tyr Ser Gly Gln Gln Pro Ser

<220>
<221> SITE
<222> (107)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (173)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1414
Leu Cys Ala Pro Arg Ser Pro Arg Pro Gly Thr Gly Asp Ala Ala Pro
1   5   10   15

Pro Ser Glu Pro Xaa Ala Ser Ala Ser Gly Thr Asp Leu Leu Gly Trp
            20   25   30

Leu Ile Lys Glu Glu Ala Ala Ala Met Ser Ala Val Gly Xaa Ala Thr
        35   40   45

Pro Tyr Leu His His Pro Gly Asp Ser His Ser Gly Arg Val Ser Phe
    50   55   60

Leu Gly Ala Gln Leu Pro Pro Glu Val Ala Ala Met Ala Arg Leu Leu
65   70   75   80

Gly Asp Leu Asp Xaa Ser Thr Phe Arg Lys Leu Leu Lys Phe Val Val
                85   90   95

Ser Ser Leu Gln Gly Glu Asp Cys Arg Glu Xaa Leu Gln Arg Leu Gly
            100   105   110

Val Ser Ala Asn Leu Pro Glu Glu Gln Leu Gly Ala Leu Leu Ala Gly
        115   120   125

Met His Thr Leu Leu Gln Gln Ala Leu Arg Leu Pro Pro Thr Ser Leu
    130   135   140

Lys Pro Asp Thr Phe Arg Asp Gln Leu Gln Glu Leu Cys Ile Pro Gln
145   150   155   160

Asp Leu Val Gly Asp Leu Ala Ser Val Val Phe Gly Xaa Pro Ala Ala
                165   170   175

Leu Leu Asp Ser Val Ala Gln Gln Gln Gly Ala Trp Leu Pro His Val
            180   185   190

Ala Asp Phe Arg Trp Arg Val Asp Val Ala Ile Ser Thr Ser Ala Leu
        195   200   205

Ala Ala Asp Ile Ala Gln Thr Gln Gly Phe Gln Glu Cys Ala Gln Phe
20 25 30

Leu Leu Asn Leu Gln Asn Cys His Leu Asn His Phe Tyr Asn Asn Gly
35 40 45

Ile Leu Asn Gly Gly His Gln Asn Val Phe Pro Asn His Ile Ser Val
50 55 60

Gly Thr Asn Arg Lys Arg Cys Leu Glu Asp Ser Glu Asp Phe Gly Val
65 70 75 80

Lys Lys Ala Arg Thr Glu Ala Gln Ser Leu Asp Ser Ala Val Pro Leu
85 90 95

Thr Asn Gly Asp Thr Glu Asp Asp Ala Asp Lys Met His Val Asp Arg
100 105 110

Glu Phe Ala Val Val Thr Gly Gly Ser Gly Gln Phe Pro Val Ser Cys
115 120 125

Asn Asn Asn Pro Met Val Glu Asp Thr Lys Gln Gln Glu Ser Gly Ser
130 135 140

Val Gly Pro Lys Glu Ile Glu Ile Tyr Thr Val Ser Ala Met Gln Thr
145 150 155 160

Pro Cys Arg Cys Arg Asn Gln Tyr Ala Tyr Tyr Phe
165 170

<210> 1414
<211> 264
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (21)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (46)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (85)
<223> Xaa equals any of the naturally occurring L-amino acids

<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (31)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (93)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (96)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1412

```
Pro Gln His Thr Thr Pro Pro Pro Thr Glu Thr Gly Thr Ser Gly Leu
 1               5                  10                  15

Ser Ser Gly Val Ser Gly Ser Thr Thr Ala Ala Ser Ser Pro Xaa Gly
            20                  25                  30

Leu Val Glu Arg Glu Gly Val Val Leu Val Phe Gly Pro Leu Thr Ala
        35                  40                  45

Asp Ser Gln Glu Val Leu Arg Arg Ala Trp His Trp Ala Gln Arg Leu
    50                  55                  60

Gln Asp Tyr Cys Ala Thr Gln Pro Ala Leu Phe His Val Gly Phe Pro
65                  70                  75                  80

Val Ser Leu Ile Asp His Glu Gly Phe Gln Val Cys Xaa Asp Ser Xaa
                85                  90                  95
```

<210> 1413
<211> 172
<212> PRT
<213> Homo sapiens

<400> 1413

```
Phe Ser Val Phe Val Leu Tyr Ser Leu Arg Asn Ala Ser Gly Leu Thr
 1               5                  10                  15
```

35 40 45

Gly Leu Glu Glu Gln Leu Arg Ala Val Arg Met Pro Ser Pro Phe Arg
50 55 60

Ser Ser Ala Leu Met Gly Met Cys Gly Ser Arg Ser Ala Asp Asn Leu
65 70 75 80

Ser Cys Pro Ser Pro Leu Asn Val Met Glu Pro Val Thr Glu Leu Met
85 90 95

Gln Glu Gln Ser Tyr Leu Lys Ser Glu Leu Gly Leu Gly Leu Gly Glu
100 105 110

Met Gly Phe Glu Ile Pro Pro Gly Glu Ser Ser Glu Ser Val Phe Ser
115 120 125

Gln Ala Thr Ser Glu Ser Ser Ser Val Cys Ser Gly Pro Ser His Ala
130 135 140

Asn Arg Arg Thr Gly Val Pro Ser Thr Ala Ser Val Gly Lys Ser Lys
145 150 155 160

Thr Pro Leu Val Ala Arg Lys Lys Val Phe Arg Ala Ser Val Ala Leu
165 170 175

Thr Pro Thr Ala Pro Ser Arg Thr Gly Ser Val Gln Thr Pro Pro Asp
180 185 190

Leu Glu Ser Ser Glu Glu Val Asp Ala Ala Glu Gly Ala Pro Glu Val
195 200 205

Val Gly Pro Lys Ser Glu Val Glu Glu Gly His Gly Lys Leu Pro Ser
210 215 220

Met Pro Ala Ala Glu Glu Met His Lys Asn Val Glu Gln Asp Glu Leu
225 230 235 240

Gln Gln Val Ile Arg Glu Ile Lys Glu Ser Ile Val Gly Glu Ile Arg
245 250 255

Arg Glu Ile Val Ser Gly Leu Leu Ala Ala Val Ser Ser Ser Lys Ala
260 265 270

Ser Asn Ser Lys Gln Asp Tyr His
275 280

<210> 1412
<211> 96

Phe Val Asn His Ala Pro Gly Val Phe Ser Gly Thr Phe Ser Gly Thr
50 55 60

Leu His Pro Asn Cys Gln Asp Ser Ser Gly Arg Pro Arg Arg Asp Ile
65 70 75 80

Gly Thr Ile Leu Gln Ile Leu Asn Asp Leu Leu Ser Ala Thr Arg His
85 90 95

Tyr Gln Gly Met Pro Pro Ser Leu Ala Gln Leu Arg Cys His Ala Gln
100 105 110

Cys Ser Pro Ala Ser Pro Ala Pro Asp Leu Ala Pro Arg Thr Thr Ser
115 120 125

Cys Glu Lys Leu Thr Ala Ala Pro Ser Ala Ser Leu Leu Gln Gly Gln
130 135 140

Ser Gln Ile Arg Met Cys Lys Pro Pro Gly Asp Arg Xaa Ser Ala Asp
145 150 155 160

Arg Lys Pro Arg His Ala Xaa Lys Val Glu Arg Leu Gln Leu Leu Leu
165 170 175

His Glu Lys Arg Xaa Ser Xaa Lys Gly Pro Ala Gly Pro Arg Val Ser
180 185 190

Val Pro Leu Val Thr Gln Pro Gln Gly Gly Arg Ser Asp Ser Ser Ser
195 200 205

Ser Gly Gly Gly Gly Thr Gln Ala Gln Ala Ser Gly Leu Gly Leu Asp
210 215 220

Phe Glu Glu Leu Arg Met Glu Ala Arg Ser Gln Pro
225 230 235

<210> 1411
<211> 280
<212> PRT
<213> Homo sapiens

<400> 1411
Asn Trp Gln Cys Cys Val Lys Thr Met Val Tyr His His Met Thr Glu
1 5 10 15

Glu Glu Arg Phe Glu Val Asp Gln Leu Gln Gly Leu Arg Asn Ser Val
20 25 30

Arg Met Glu Leu Gln Asp Leu Glu Leu Gln Leu Glu Glu Arg Leu Leu

1 5 10 15

Asn Cys Trp Asp Leu Gly Asp Gln Val Gln Gly Gly Glu Tyr Lys Leu
20 25 30

Ser Leu Phe Gly Phe Ala Ile Leu Gly Leu Thr Lys Pro Cys Ser Ile
35 40 45

Ser Ser Ile Leu Gly Asn Asn Leu Leu Arg Trp Ala Phe Ile Phe Cys
50 55 60

Phe Pro Glu Leu Glu Ile Ser Ile Xaa Xaa Lys Leu
65 70 75

<210> 1410
<211> 236
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (157)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (167)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (181)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (183)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1410
His Ala Ala Ser Thr Thr Cys Pro Glu Gln Met Asp Cys Ser Pro Thr
1 5 10 15

Asp Ser Ser Ser Ala Ser Pro Gly Ala Ser Thr Thr Ser Thr Pro Gly
20 25 30

Ala Ser Pro Ala Pro Arg Ser Arg Lys Pro Gly Ala Val Ile Glu Ser
35 40 45

180 185 190

Pro Phe Ser Phe Ala Gln Gly Pro Leu Lys Asp Ala Pro Asn Leu Ile
195 200 205

Cys Thr Pro His Thr Ala Trp Tyr Ser Glu Gln Ala Ser Leu Glu Met
210 215 220

Arg Glu Ala Ala Ala Thr Glu Ile Arg Arg Ala Ile Thr Gly Arg Ile
225 230 235 240

Pro Glu Ser Leu Arg Asn Cys Val Asn Lys Glu Phe Phe Val Thr Ser
245 250 255

Ala Pro Trp Ser Val Ile Asp Gln Gln Ala Ile His Pro Glu Leu Asn
260 265 270

Gly Ala Thr Tyr Arg Tyr Pro Pro Gly Ile Val Gly Val Ala Pro Gly
275 280 285

Gly Leu Pro Ala Ala Met Glu Gly Ile Ile Pro Gly Gly Ile Pro Val
290 295 300

Thr His Asn Leu Pro Thr Val Ala His Pro Ser Gln Ala Pro Ser Pro
305 310 315 320

Asn Gln Pro Thr Lys His Gly Asp Asn Arg Glu His Pro Asn Glu Gln
325 330 335

<210> 1409
<211> 76
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (73)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (74)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1409
Glu Ala Glu Glu Asp Thr Ser Glu Arg Ser Glu Glu Lys Arg Ser Val

Val Ser Asn Ala Phe Gln Gly Met Phe Ile Phe Leu Phe Leu Cys Val
675 680 685

Leu Ser Arg Lys Ile Gln Glu Glu Tyr Tyr Arg Leu Phe Lys Asn Val
690 695 700

Pro Cys Cys Phe Gly Cys Leu Ser Cys
705 710

<210> 1408
<211> 336
<212> PRT
<213> Homo sapiens

<400> 1408
Gln Arg Gly His Gln Gly Cys Arg Arg Ala Arg Asn Cys Arg Val Gln
1 5 10 15

His Pro Val Cys Ser Arg Gly Arg Asp Ser Gly Leu Tyr His Leu Pro
20 25 30

His Pro Gln Pro Val Pro Glu Asn Thr Trp Leu Tyr Gln Ala Leu Arg
35 40 45

Glu Gly Thr Arg Val Gln Ser Val Glu Gln Ile Arg Glu Val Ala Ser
50 55 60

Gly Ala Ala Arg Ile Arg Gly Glu Thr Leu Gly Leu Ile Gly Phe Gly
65 70 75 80

Arg Thr Gly Gln Ala Val Ala Val Arg Ala Lys Ala Phe Gly Phe Ser
85 90 95

Val Ile Phe Tyr Asp Pro Tyr Leu Gln Asp Gly Ile Glu Arg Ser Leu
100 105 110

Gly Val Gln Arg Val Tyr Thr Leu Gln Asp Leu Leu Tyr Gln Ser Asp
115 120 125

Cys Val Ser Leu His Cys Asn Leu Asn Glu His Asn His His Leu Ile
130 135 140

Asn Asp Phe Thr Ile Lys Gln Met Arg Gln Gly Ala Phe Leu Val Asn
145 150 155 160

Ala Ala Arg Gly Gly Leu Val Asp Glu Lys Ala Leu Ala Gln Ala Leu
165 170 175

Lys Glu Gly Arg Ile Arg Gly Ala Ala Leu Asp Val His Glu Ser Glu

Thr Met Asn Gly Ser Trp Ser Ser Glu Gly Cys Glu Leu Thr Tyr Ser
405 410 415

Asn Glu Thr His Thr Ser Cys Arg Cys Asn His Leu Thr His Phe Ala
420 425 430

Ile Leu Met Ser Ser Gly Pro Ser Ile Gly Ile Lys Asp Tyr Asn Ile
435 440 445

Leu Thr Arg Ile Thr Gln Leu Gly Ile Ile Ile Ser Leu Ile Cys Leu
450 455 460

Ala Ile Cys Ile Phe Thr Phe Trp Phe Phe Ser Glu Ile Gln Ser Thr
465 470 475 480

Arg Thr Thr Ile His Lys Asn Leu Cys Cys Ser Leu Phe Leu Ala Glu
485 490 495

Leu Val Phe Leu Val Gly Ile Asn Thr Asn Thr Asn Lys Leu Phe Cys
500 505 510

Ser Ile Ile Ala Gly Leu Leu His Tyr Phe Phe Leu Ala Ala Phe Ala
515 520 525

Trp Met Cys Ile Glu Gly Ile His Leu Tyr Leu Ile Val Val Gly Val
530 535 540

Ile Tyr Asn Lys Gly Phe Leu His Lys Asn Phe Tyr Ile Phe Gly Tyr
545 550 555 560

Leu Ser Pro Ala Val Val Val Gly Phe Ser Ala Ala Leu Gly Tyr Arg
565 570 575

Tyr Tyr Gly Thr Thr Lys Val Cys Trp Leu Ser Thr Glu Asn Asn Phe
580 585 590

Ile Trp Ser Phe Ile Gly Pro Ala Cys Leu Ile Ile Leu Val Asn Leu
595 600 605

Leu Ala Phe Gly Val Ile Ile Tyr Lys Val Phe Arg His Thr Ala Gly
610 615 620

Leu Lys Pro Glu Val Ser Cys Phe Glu Asn Ile Arg Ser Cys Ala Arg
625 630 635 640

Gly Ala Leu Ala Leu Leu Phe Leu Leu Gly Thr Thr Trp Ile Phe Gly
645 650 655

Val Leu His Val Val His Ala Ser Val Val Thr Ala Tyr Leu Phe Thr
660 665 670

Cys Ile Glu Asn Val Xaa Ala Asn Cys His Leu Asp Asn Val Cys Ile
130 135 140

Ala Ala Asn Ile Asn Lys Thr Leu Thr Lys Ile Arg Ser Ile Lys Glu
145 150 155 160

Pro Val Ala Leu Leu Gln Glu Val Tyr Arg Asn Ser Val Thr Asp Leu
165 170 175

Ser Pro Thr Asp Ile Ile Thr Tyr Ile Glu Ile Leu Ala Glu Ser Ser
180 185 190

Ser Leu Leu Gly Tyr Lys Asn Asn Thr Ile Ser Ala Lys Asp Thr Leu
195 200 205

Ser Asn Ser Thr Leu Thr Glu Phe Val Lys Thr Val Asn Asn Phe Val
210 215 220

Gln Arg Asp Thr Phe Val Val Trp Asp Lys Leu Ser Val Asn His Arg
225 230 235 240

Arg Thr His Leu Thr Lys Leu Met His Thr Val Glu Gln Ala Thr Leu
245 250 255

Arg Ile Ser Gln Ser Phe Gln Lys Thr Thr Glu Phe Asp Thr Asn Ser
260 265 270

Thr Asp Ile Ala Leu Lys Val Xaa Phe Xaa Asp Ser Tyr Asn Met Lys
275 280 285

His Ile His Pro His Met Asn Met Asp Gly Asp Tyr Ile Asn Ile Phe
290 295 300

Pro Lys Arg Lys Ala Ala Tyr Asp Ser Asn Gly Asn Val Ala Val Ala
305 310 315 320

Phe Xaa Tyr Tyr Lys Ser Ile Gly Pro Leu Leu Ser Ser Ser Asp Asn
325 330 335

Phe Leu Leu Lys Pro Gln Asn Tyr Asp Asn Ser Glu Glu Glu Glu Arg
340 345 350

Val Ile Ser Ser Val Ile Ser Val Ser Met Ser Ser Asn Pro Pro Thr
355 360 365

Leu Tyr Glu Leu Glu Lys Ile Thr Phe Thr Leu Ser His Arg Lys Val
370 375 380

Thr Asp Arg Tyr Arg Ser Leu Cys Ala Phe Trp Asn Tyr Ser Pro Asp
385 390 395 400

<220>
<221> SITE
<222> (10)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (134)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (280)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (282)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (322)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1407
```
Ser Pro Gly Pro Gln Pro His Ser Xaa Xaa Arg Ser Pro Pro Pro Pro
  1               5                  10                  15

Pro Leu Arg Pro Pro Pro Met Lys Arg Leu Pro Leu Leu Val Val Phe
             20                  25                  30

Ser Thr Leu Leu Asn Cys Ser Tyr Thr Gln Asn Cys Thr Lys Thr Pro
         35                  40                  45

Cys Leu Pro Asn Ala Lys Cys Glu Ile Arg Asn Gly Ile Glu Ala Cys
     50                  55                  60

Tyr Cys Asn Met Gly Phe Ser Gly Asn Gly Val Thr Ile Cys Glu Asp
 65                  70                  75                  80

Asp Asn Glu Cys Gly Asn Leu Thr Gln Ser Cys Gly Glu Asn Ala Asn
                 85                  90                  95

Cys Thr Asn Thr Glu Gly Ser Tyr Tyr Cys Met Cys Val Pro Gly Phe
            100                 105                 110

Arg Ser Ser Ser Asn Gln Asp Arg Phe Ile Thr Asn Asp Gly Thr Val
        115                 120                 125
```

Lys Phe Arg Asn His Val Met Glu Gly Asp Trp Asp Lys Ala Glu Asn
130 135 140

Asp Leu Asn Glu Leu Lys Pro Leu Val His Ser Pro His Ala Ile Val
145 150 155 160

Val Arg Gly Ala Leu Glu Ile Ser Gln Thr Leu Leu Gly Ile Ile Val
165 170 175

Arg Met Lys Phe Leu Leu Leu Gln Gln Lys Tyr Leu Glu Tyr Leu Glu
180 185 190

Asp Gly Lys Val Leu Glu Ala Leu Gln Val Leu Arg Cys Glu Leu Thr
195 200 205

Pro Leu Lys Tyr Asn Thr Glu Arg Ile His Val Leu Ser Gly Tyr Leu
210 215 220

Met Cys Ser His Ala Glu Asp Leu Arg Ala Lys Ala Glu Trp Glu Gly
225 230 235 240

Lys Gly Thr Ala Ser Arg Ser Lys Leu Leu Asp Lys Leu Gln Thr Tyr
245 250 255

Leu Pro Pro Ser Val Met Leu Pro Pro Arg Arg Leu Gln Thr Leu Leu
260 265 270

Arg Gln Ala Val Glu Leu Gln Arg Asp Arg Cys Leu Tyr His Asn Thr
275 280 285

Lys Leu Asp Asn Asn Leu Asp Ser Val Ser Leu Leu Ile Asp His Val
290 295 300

Cys Ser Lys Arg Gln Phe Pro Xaa Leu Tyr Ala Ala Asp Thr Tyr Gly
305 310 315 320

Ser Ile Val Met Asn Phe Gly Ser Cys
325

<210> 1407
<211> 713
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (9)
<223> Xaa equals any of the naturally occurring L-amino acids

Asn Glu Ala Ser Ile Ile Ile Arg Asn Thr Lys Glu Pro Thr Leu Thr
130 135 140

Leu Lys Val Ile Leu Thr Ser Pro Leu Ile Arg Asp Glu Leu Glu Lys
145 150 155 160

Lys Asp Gly Glu Asn Val Ser Met Lys Asp Pro Pro Asp Leu Leu Asp
165 170 175

Arg Gln Lys Cys Leu Asn Ala Leu Ala Ser Leu Arg His Ala Lys Trp
180 185 190

Phe Gln Ala Arg
195

<210> 1406
<211> 329
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (312)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1406
Pro Pro Arg Pro Leu Ser Ala Arg Lys Leu Trp Pro Pro Leu Pro Pro
1 5 10 15

Pro Pro Thr Arg Thr Pro Ala Glu Pro Pro Arg Pro Arg Gly Arg Asn
20 25 30

Pro Ala Ser Asn Asn Ser Asn Ser Leu Asn Val Asn Asn Gly Val Pro
35 40 45

Gly Gly Ala Ala Ala Ala Ser Ser Ala Thr Val Ala Ala Ala Ser Ala
50 55 60

Thr Thr Ala Ala Ser Ser Ser Leu Ala Thr Pro Glu Leu Gly Ser Ser
65 70 75 80

Leu Lys Lys Lys Lys Arg Leu Ser Gln Ser Asp Glu Asp Val Ile Arg
85 90 95

Leu Ile Gly Gln His Leu Asn Gly Leu Gly Leu Asn Gln Thr Val Asp
100 105 110

Leu Leu Met Gln Glu Ser Gly Cys Arg Leu Glu His Pro Ser Ala Thr
115 120 125

210 215 220

Pro Val Gly Gly Pro Asp Gly Thr Val Pro Asp Ala His Ala His Ala
225 230 235 240

Tyr Ala Ile Cys Lys Tyr Ala Phe Leu Ile Ser Thr Ala Lys Gly Thr
245 250 255

Ile Arg Phe Gln Trp Thr Ala Asn Gly Asp Leu Ser Gly Leu Ser Gln
260 265 270

Tyr Ser Ser Thr Ser Asp Thr Ser Asn Ser Pro Ile Val
275 280 285

<210> 1405
<211> 196
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (113)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1405
Arg Val Thr Phe Asn Asn Leu Ser Ile Ser Gly Glu Leu Glu Ala Val
1 5 10 15

Gln Asn Met Val Ser Thr Val Glu Cys Ala Leu Lys His Val Ser Asp
20 25 30

Trp Leu Asp Glu Thr Asn Lys Gly Thr Lys Thr Glu Gly Glu Thr Glu
35 40 45

Val Lys Lys Asp Glu Ala Gly Glu Asn Tyr Ser Lys Asp Gln Gly Gly
50 55 60

Arg Thr Leu Cys Gly Val Met Arg Ile Gly Leu Val Ala Lys Gly Leu
65 70 75 80

Leu Ile Lys Asp Asp Met Asp Leu Glu Leu Val Leu Met Cys Lys Asp
85 90 95

Lys Pro Thr Glu Thr Leu Leu Asn Thr Val Lys Asp Asn Leu Pro Ile
100 105 110

Xaa Ile Gln Lys Leu Thr Glu Glu Lys Tyr Gln Val Glu Gln Cys Val
115 120 125

Gly Phe Leu Ala Glu Glu Lys His Leu His Val
130 135

<210> 1404
<211> 285
<212> PRT
<213> Homo sapiens

<400> 1404
Glu Glu Gln His Ser Met Leu Gly Ser Gly Phe Lys Ala Glu Arg Leu
1 5 10 15

Arg Val Asn Leu Arg Leu Val Ile Asn Arg Leu Lys Leu Leu Glu Lys
20 25 30

Lys Lys Thr Glu Leu Ala Gln Lys Ala Arg Lys Glu Ile Ala Asp Tyr
35 40 45

Leu Ala Ala Gly Lys Asp Glu Arg Ala Arg Ile Arg Val Glu His Ile
50 55 60

Ile Arg Glu Asp Tyr Leu Val Glu Ala Met Glu Ile Leu Glu Leu Tyr
65 70 75 80

Cys Asp Leu Leu Leu Ala Arg Phe Gly Leu Ile Gln Ser Met Lys Glu
85 90 95

Leu Asp Ser Gly Leu Ala Glu Ser Val Ser Thr Leu Ile Trp Ala Ala
100 105 110

Pro Arg Leu Gln Ser Glu Val Ala Glu Leu Lys Ile Val Ala Asp Gln
115 120 125

Leu Cys Ala Lys Tyr Ser Lys Glu Tyr Gly Lys Leu Cys Arg Thr Asn
130 135 140

Gln Ile Gly Thr Val Asn Asp Arg Leu Met His Lys Leu Ser Val Glu
145 150 155 160

Ala Pro Pro Lys Ile Leu Val Glu Arg Tyr Leu Ile Glu Ile Ala Lys
165 170 175

Asn Tyr Asn Val Pro Tyr Glu Pro Asp Ser Val Val Met Ala Glu Ala
180 185 190

Pro Pro Gly Val Glu Thr Asp Leu Ile Asp Val Gly Phe Thr Asp Asp
195 200 205

Val Lys Lys Gly Gly Pro Gly Arg Gly Gly Ser Gly Gly Phe Thr Ala

145 150 155 160

Ser Ser Leu Ser Ser Gly Ile Arg Lys Gly Met Val Ser Thr Pro His
165 170 175

Cys Gly Gly Phe Arg Gln Gly Ser Tyr Cys Leu Leu Cys Leu Gly Phe
180 185 190

Pro Ile Trp Lys Met Gly Ala Gly Val Leu Thr Tyr Leu Arg Trp Asn
195 200 205

Gly Glu Gln Gly Thr Cys Arg Ser Pro Ser Glu Asn Val Met
210 215 220

<210> 1403
<211> 139
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (126)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1403
Arg Ala Thr Leu Glu His Pro Ala Leu Val Pro Leu Gln Pro Ala Glu
1 5 10 15

Met Val Glu Leu Met Phe Pro Leu Leu Leu Leu Leu Leu Pro Phe Leu
20 25 30

Leu Tyr Met Ala Ala Pro Gln Ile Arg Lys Met Leu Ser Ser Gly Val
35 40 45

Cys Thr Ser Thr Val Gln Leu Pro Gly Lys Val Val Val Val Thr Gly
50 55 60

Ala Asn Thr Gly Ile Gly Lys Glu Thr Ala Lys Glu Leu Ala Gln Arg
65 70 75 80

Gly Ala Arg Val Tyr Leu Ala Cys Arg Asp Val Glu Lys Gly Glu Leu
85 90 95

Val Ala Lys Glu Ile Gln Thr Thr Thr Gly Asn Gln Gln Val Leu Val
100 105 110

Arg Lys Leu Asp Leu Ser Asp Thr Lys Ser Ile Arg Ala Xaa Ala Lys
115 120 125

Gly Ala Leu Cys Ala Val Trp Ala Arg Ala Gly Arg Pro Gly Pro Gln
1   5   10   15

Asp Val Arg Cys Pro Leu Arg Arg Ala Gly Ala Cys Gly Glu Thr Arg
            20   25   30

Ala Thr Cys Glu Arg Gly Pro Glu Thr Phe Cys Thr Arg Glu Leu Arg
        35   40   45

Gly Leu Ser Asn Pro Ala Ser Val Gly Asn Val Ser Glu Thr Gln Gly
    50   55   60

Glu Trp Pro Gln Pro Phe Val Thr Cys Ser Pro Ala Cys Pro Lys
65   70   75

<210> 1402
<211> 222
<212> PRT
<213> Homo sapiens

<400> 1402
Pro Ala Asn Gly Leu Leu Phe Gly Gly Leu Arg Ser Arg Glu Leu Arg
1   5   10   15

Val Phe Ala Arg Leu Ser Thr Phe Arg Lys Ile Arg Ala Gly Val Trp
            20   25   30

Glu Val Pro His Ser Thr Gly Gln Arg Pro Leu Asp Ser Arg Gly Asn
        35   40   45

Leu Gln Leu Trp Val Arg Gly His Leu Ala Leu Val Phe Ala Leu Tyr
    50   55   60

Arg Ser Cys Gly Pro Arg Gly Ala Ser Gly Glu Asp Val Ser Gly Arg
65   70   75   80

Gly Phe Pro Ala Phe Cys Leu Gly Gln Trp Gly Cys Ser Cys Leu Ser
                85   90   95

Phe Ser Pro Thr Pro Trp Thr Val Leu Gly Cys Trp Cys Thr Trp Leu
            100   105   110

Ala His Gly Gly Gln Arg Ala Glu Asn Ala Thr Ala Trp Leu Leu Val
        115   120   125

Pro Phe Asp Gln Glu Thr Gln Glu Glu Thr Pro Gln Ser Ala Glu Arg
    130   135   140

Pro Pro Gly Ser Leu Ala His Ser Arg Ser Gly Arg Asp Gly Arg Val

Thr Ala Ala Thr Gly Arg Leu Arg Thr Arg Ser Ser Arg Cys Pro Arg
180 185 190

Ser Leu Pro Ser Arg Ser Ser Cys Gly His Pro Arg Arg Arg Pro Pro
195 200 205

Ala Ser Ser Thr Thr Cys Trp Pro Arg Ser Ser Ala Arg Gln Ala Ala
210 215 220

Trp Arg Thr Arg Lys Ser Gly Met Pro Arg Trp Trp Arg Ser
225 230 235

<210> 1400
<211> 83
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (83)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1400
Phe Leu Lys Leu Cys Gly Leu Lys Trp Gln Val Ala Ser Thr Asp Phe
1 5 10 15

Thr Arg Phe Lys Leu Ile Phe Lys Ser Asn His Trp Arg Asn Arg Tyr
20 25 30

Thr Phe Val Cys Arg Ile Phe Thr Ser Tyr Asn Ser Thr Arg Lys Val
35 40 45

Phe Ser Phe Pro Ala Asp Ala Gly Thr Pro Thr Gly Thr Leu Gln Lys
50 55 60

Asp Ala Ser Pro Asp Cys Thr Asp Gly Arg Trp Lys His Gly Pro Val
65 70 75 80

Cys Gly Xaa

<210> 1401
<211> 79
<212> PRT
<213> Homo sapiens

<400> 1401

<210> 1399
<211> 238
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (18)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (57)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1399
Glu Ala Glu Ala Ala Glu Arg Gly Pro Leu His Ala Gly Lys Gln Pro
1 5 10 15

Arg Xaa Pro Gly Gly Gly Ala Arg Trp Pro Cys Cys Ser Ala Phe Lys
20 25 30

Glu Gln Gln Phe Val Ile Ala Gly Val Leu Val Glu Asp Ser Asn Asn
35 40 45

His His Leu Met Leu Glu Ala Ser Xaa Trp Ala Thr Ile Glu Gly Leu
50 55 60

Val Glu Leu Leu Gln Pro Phe Lys Gln Val Ala Glu Met Leu Ser Ala
65 70 75 80

Ser Arg Tyr Pro Thr Ile Ser Met Val Lys Pro Leu Leu His Met Leu
85 90 95

Leu Asn Thr Thr Leu Asn Ile Lys Glu Thr Asp Ser Lys Glu Leu Ser
100 105 110

Met Ala Lys Glu Val Ile Ala Lys Glu Leu Ser Lys Thr Tyr Gln Glu
115 120 125

Thr Pro Glu Ile Asp Met Phe Leu Asn Val Ala Thr Phe Leu Asp Pro
130 135 140

Arg Tyr Lys Arg Leu Pro Phe Leu Ser Ala Phe Glu Arg Gln Gln Val
145 150 155 160

Glu Asn Arg Val Val Glu Glu Ala Lys Gly Cys Trp Thr Arg Ser Lys
165 170 175

85 90 95

Ala Val Val Gln Val Asn Gly Thr Pro Val Met Leu Gln Thr Thr Cys
100 105 110

Ala Val His Ser Gly Ser Ser Gly Gly Pro Leu Phe Ser Asn His Ser
115 120 125

Gly Asn Leu Leu Gly Ile Ile Thr Ser Asn Thr Arg Asp Asn Asn Thr
130 135 140

Gly Ala Thr Tyr Pro His Leu Asn Phe Ser Ile Pro Ile Thr Val Leu
145 150 155 160

Gln Pro Ala Leu Gln Gln Tyr Ser Gln Thr Gln Asp Leu Gly Gly Leu
165 170 175

Arg Glu Leu Asp Arg Ala Ala Glu Pro Val Arg Val Val Trp Arg Leu
180 185 190

Gln Arg Pro Leu Ala Glu Ala Pro Arg Ser Lys Leu
195 200

<210> 1398
<211> 69
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (19)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1398
Val Phe Ile Val Phe Asn Ser Val Thr Ser Arg Phe Phe Pro Lys Lys
1 5 10 15

Phe Leu Xaa Ile Lys Ser Arg Leu Phe Arg Lys Tyr Leu Pro Val Leu
20 25 30

His Phe Asn Phe Thr Asn Gln Thr Thr Ala Ile Gln Pro Ile Lys Gln
35 40 45

Gln Lys Gln Ser Lys Glu Arg Asp Leu Asp Ile Gly Ile Lys Glu Ser
50 55 60

Phe His Phe Ile Ile
65

<210> 1396
<211> 71
<212> PRT
<213> Homo sapiens

<400> 1396
Ile Ile Tyr Val His Ile Val Gln Gln Lys Tyr Asn Val Asn His Asn
1   5   10   15

Ile Ile Phe Asn Phe Leu Val Ala Ile Leu Lys Lys Lys Gln Ala Lys
            20   25   30

Leu Ile Leu Ile Thr Val Tyr Val Thr Gln Tyr Ile Lys Asn Ile Ile
        35   40   45

Ser Thr Cys Asn Gln Tyr Lys Arg Leu Leu Met Lys His Leu Ile Phe
    50   55   60

Phe Phe Phe His Thr Lys Ser
65   70

<210> 1397
<211> 204
<212> PRT
<213> Homo sapiens

<400> 1397
Ala Pro Arg Leu Val Val Thr Cys Arg His Val Ser Pro Arg Glu Ala
1   5   10   15

Ala Arg Val Leu Val Arg Ser Thr Thr Pro Lys Ser Val Ala Ile Trp
            20   25   30

Gly Arg Val Val Phe Ala Thr Gln Glu Thr Cys Pro Tyr Asp Ile Ala
        35   40   45

Val Val Ser Leu Glu Glu Asp Leu Asp Asp Val Pro Ile Pro Val Pro
    50   55   60

Ala Glu His Phe His Glu Gly Glu Ala Val Ser Val Val Gly Phe Gly
65   70   75   80

Val Phe Gly Gln Ser Cys Gly Pro Ser Val Thr Ser Gly Ile Leu Ser

Phe Ile Val Ser Asn Ile Arg Leu Leu His Lys Gln Arg Leu Leu Phe
145 150 155 160

Ser Cys Leu Leu Trp Leu Thr Phe Met Tyr Phe Phe Trp Lys Leu Gly
165 170 175

Asp Pro Phe Pro Ile Leu Ser Pro Lys His Gly Ile Leu Ser Ile Glu
180 185 190

Gln Leu Ile Ser Arg Val Gly Val Ile Gly Val Thr Leu Met Ala Leu
195 200 205

Leu Ser Gly Phe Gly Ala Val Asn Cys Pro Tyr Thr Tyr Met Ser Tyr
210 215 220

Phe Leu Arg Asn Val Thr Asp Thr Asp Ile Leu Ala Leu Glu Arg Arg
225 230 235 240

Leu Leu Gln Thr Met Asp Met Ile Ile Ser Lys Lys Lys Arg Met Ala
245 250 255

Met Ala Arg Arg Thr Met Phe Gln Lys Gly Glu Val His Asn Lys Pro
260 265 270

Ser Gly Phe Trp Gly Met Ile Lys Ser Val Thr Thr Ser Ala Ser Gly
275 280 285

Ser Glu Asn Leu Thr Leu Ile Gln Gln Glu Val Asp Ala Leu Glu Glu
290 295 300

Leu Ser Arg Gln Leu Phe Leu Glu Thr Ala Asp Leu Tyr Ala Thr Lys
305 310 315 320

Glu Arg Ile Glu Tyr Ser Lys Thr Phe Lys Gly Lys Tyr Phe Asn Phe
325 330 335

Leu Gly Tyr Phe Phe Ser Ile Tyr Cys Val Trp Lys Ile Phe Met Ala
340 345 350

Thr Ile Asn Ile Val Phe Asp Arg Val Gly Lys Thr Asp Pro Val Thr
355 360 365

Arg Gly Ile Glu Ile Thr Val Asn Tyr Leu Gly Ile Gln Phe Asp Val
370 375 380

Lys Phe Trp Ser Gln His Ile Ser Phe Ile Leu Val Gly Ile Ile Ile
385 390 395 400

Val Thr Ser Ile Arg Gly Leu Leu Ile Thr Leu Xaa Xaa Val Ile Leu
405 410 415

Pro Tyr Trp Arg Ala Pro Pro Asp Ser Trp Ala Gln Phe Ile Ser Ser
145 150 155 160

Pro Phe

<210> 1395
<211> 416
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (412)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (413)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1395
Gln Leu Asp Gly Val Gly Leu Glu Ser Arg Ser Pro Gly Cys Ser Thr
1 5 10 15

Trp Glu Lys Ala Asp Arg Val Arg Gly Pro Val Ala Gln Arg Ala Val
20 25 30

Ala Ser Gly Ser Gly Lys Trp Arg Gln Glu Pro Ser Leu His Phe Ala
35 40 45

Met Ser Phe Leu Ile Asp Ser Ser Ile Met Ile Thr Ser Gln Ile Leu
50 55 60

Phe Phe Gly Phe Gly Trp Leu Phe Phe Met Arg Gln Leu Phe Lys Asp
65 70 75 80

Tyr Glu Ile Arg Gln Tyr Val Val Gln Val Ile Phe Ser Val Thr Phe
85 90 95

Ala Phe Ser Cys Thr Met Phe Glu Leu Ile Ile Phe Glu Ile Leu Gly
100 105 110

Val Leu Asn Ser Ser Ser Arg Tyr Phe His Trp Lys Met Asn Leu Cys
115 120 125

Val Ile Leu Leu Ile Leu Val Phe Met Val Pro Phe Tyr Ile Gly Tyr
130 135 140

Glu Leu Gln Glu Leu Val Asp Thr Ala His Xaa Met Gly Ile Ile Val
130 135 140

Leu Leu Asp Val Val Gln Ala His Ala Ser Lys Asn Ser Ser Arg Trp
145 150 155 160

Asp Trp Asn Met Val Trp Met Gly Asp Arg Phe Xaa Val Asn Phe Pro
165 170 175

Phe Leu Gly Xaa
180

<210> 1394
<211> 162
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (64)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1394
Ile Leu Thr Tyr Lys Glu Thr Gly Pro Gln Thr Gly Asn Ser Leu Val
1 5 10 15

Gln Ala Ser Ala Arg Arg Lys Asp Thr Met Thr Ala Pro Cys Trp Ala
20 25 30

Gln Pro Gly Ser Leu Ala Lys Cys Leu Leu Glu Ala Val Pro Ala Arg
35 40 45

Gly Leu Gln Gln Gly Asp Ser Leu Pro Ser Gly His Tyr Gln Tyr Xaa
50 55 60

Leu Tyr Leu Glu Val Gly Lys Arg Ser Pro Leu Arg Gln Gln Asp Asn
65 70 75 80

Gly Gln Phe Arg Glu Gly Glu Gly Ser Lys Arg Phe Arg Gly His Arg
85 90 95

Ser Gln Arg Thr Pro Pro Arg Pro Thr Ala Gly Ser Ala Trp Lys Ile
100 105 110

His Leu Leu Gly Thr Phe Trp Gln Pro Asp Gly Ser Asn Ser Pro Leu
115 120 125

Gly Leu Ile Pro Ser Ser Lys Ser Trp Leu Gln Met Ser Leu Ser Ser
130 135 140

<210> 1393
<211> 180
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (4)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (139)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (172)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (180)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1393
```
Ala Arg Arg Xaa Val Val Ile Thr Ser Lys Ser Gly Glu Ile Leu Tyr
  1               5                  10                  15

Arg Ile Ser Pro Trp Ala Lys Tyr Val Val Arg Glu Gly Asp Asn Val
             20                  25                  30

Asn Tyr Asp Trp Ile His Trp Asp Pro Glu His Ser Tyr Glu Phe Lys
         35                  40                  45

His Ser Arg Pro Lys Lys Pro Arg Ser Leu Arg Ile Tyr Glu Ser His
     50                  55                  60

Val Gly Ile Ser Ser His Glu Gly Lys Val Ala Ser Tyr Lys His Phe
 65                  70                  75                  80

Thr Cys Asn Val Leu Pro Arg Ile Lys Gly Leu Gly Tyr Asn Cys Ile
                 85                  90                  95

Gln Leu Met Ala Ile Met Glu His Ala Tyr Tyr Ala Ser Phe Gly Tyr
            100                 105                 110

Gln Ile Thr Ser Phe Phe Ala Ala Ser Ser Arg Tyr Gly Thr Pro Glu
        115                 120                 125
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            20                      25                      30

Ser Pro Arg Ala Ser Lys His His Tyr Ser Arg Ser Arg Ser Arg Ser
        35                  40                  45

Arg Glu Arg Lys Arg Lys Ser Asp Asn Glu Gly Arg Lys His Arg Ser
    50                  55                  60

Arg Ser Arg Ser Lys Glu Gly Arg Arg His Glu Ser Lys Asp Lys Ser
65                  70                  75                  80

Ser Lys Lys His Lys Ser Glu Glu His Asn Asp Lys Glu His Ser Ser
                85                  90                  95

Asp Lys Gly Arg Glu Arg Leu Asn Ser Ser Glu Asn Gly Glu Asp Arg
            100                 105                 110

His Lys Arg Lys Glu Arg Lys Ser Ser Arg Gly Arg Ser His Ser Arg
        115                 120                 125

Ser Arg Ser Arg Glu Arg Arg His Arg Ser Arg Ser Arg Glu Arg Lys
    130                 135                 140

Lys Ser Arg Ser Arg Ser Arg Glu Arg Lys Lys Ser Arg Ser Arg Ser
145                 150                 155                 160

Arg Glu Arg Lys Lys Ser Arg Ser Arg Ser Arg Glu Arg Lys Arg Arg
                165                 170                 175

Ile Arg Ser Arg Ser Arg Ser Arg Ser Arg His Arg His Arg Thr Arg
            180                 185                 190

Ser Arg Ser Arg Thr Arg Ser Arg Ser Arg Asp Arg Lys Lys Arg Ile
        195                 200                 205

Glu Lys Pro Arg Arg Phe Ser Arg Ser Leu Ser Arg Thr Pro Ser Pro
    210                 215                 220

Pro Pro Phe Arg Gly Arg Asn Thr Ala Met Asp Ala Gln Glu Ala Leu
225                 230                 235                 240

Ala Arg Arg Glu Arg Pro Gly Val Ser Leu Ile Val Cys Pro Gly Trp
                245                 250                 255

Val Thr Gln Cys Asn Leu Met Leu Leu Pro Leu Gly Thr Gln Pro Asp
            260                 265                 270

Arg Lys Leu Gln
        275
```

Tyr Gln Met Tyr Asp Tyr Ser Leu Asp Met Trp Ser Leu Gly Cys Met
165 170 175

Leu Ala Ser Met Ile Phe Arg Lys Glu Pro Phe Phe His Gly His Asp
180 185 190

Asn Tyr Asp Gln Leu Val Arg Ile Ala Lys Val Leu Gly Thr Glu Asp
195 200 205

Leu Tyr Asp Tyr Ile Asp Lys Tyr Asn Ile Glu Leu Asp Pro Arg Phe
210 215 220

Asn Asp Ile Leu Gly Arg His Ser Arg Lys Arg Trp Glu Arg Phe Val
225 230 235 240

His Ser Glu Asn Gln His Leu Val Ser Pro Glu Ala Leu Asp Phe Leu
245 250 255

Asp Lys Leu Leu Arg Tyr Asp His Gln Ser Arg Leu Thr Ala Arg Glu
260 265 270

Ala Met Glu His Pro Tyr Phe Tyr Thr Val Val Lys Asp Gln Ala Arg
275 280 285

Met Gly Ser Ser Ser Met Pro Gly Gly Ser Thr Pro Val Ser Ser Ala
290 295 300

Asn Met Met Ser Gly Ile Ser Ser Val Pro Thr Pro Ser Pro Leu Gly
305 310 315 320

Pro Leu Ala Gly Ser Pro Val Ile Ala Ala Ala Asn Pro Leu Gly Met
325 330 335

Pro Val Gln Leu Pro Leu Ala Leu Ser Ser Asn Gly Pro Ile Cys Leu
340 345 350

Leu Met Pro Glu Gln Arg Trp Gly Ser Pro Pro Ser Pro
355 360 365

<210> 1392
<211> 276
<212> PRT
<213> Homo sapiens

<400> 1392
Thr Met Ala Ala Ser Asp Thr Glu Arg Asp Gly Leu Ala Pro Glu Lys
1 5 10 15

Thr Ser Pro Asp Arg Asp Lys Lys Lys Glu Gln Ser Glu Val Ser Val

340 345 350

Arg His Leu Tyr Lys Gln Arg Arg Arg Arg Tyr Gly Gln Lys Lys Lys
355 360 365

Lys Ile His
370

<210> 1391
<211> 365
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (28)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1391
Ala Glu Val Asn Thr Val Lys Tyr Leu Lys Pro Ser Thr Ser Gln Ile
1 5 10 15

Met Lys Lys Leu Leu Leu Lys Phe Ser Ser Gln Xaa Lys Lys Lys Lys
20 25 30

Ile Lys Arg Glu Ile Lys Ile Leu Glu Asn Leu Arg Gly Gly Pro Asn
35 40 45

Ile Ile Thr Leu Ala Asp Ile Val Lys Asp Pro Val Ser Arg Thr Pro
50 55 60

Ala Leu Val Phe Glu His Val Asn Asn Thr Asp Phe Lys Gln Leu Tyr
65 70 75 80

Gln Thr Leu Thr Asp Tyr Asp Ile Arg Phe Tyr Met Tyr Glu Ile Leu
85 90 95

Lys Ala Leu Asp Tyr Cys His Ser Met Gly Ile Met His Arg Asp Val
100 105 110

Lys Pro His Asn Val Met Ile Asp His Glu His Arg Lys Leu Arg Leu
115 120 125

Ile Asp Trp Gly Leu Ala Glu Phe Tyr His Pro Gly Gln Glu Tyr Asn
130 135 140

Val Arg Val Ala Ser Arg Tyr Phe Lys Gly Pro Glu Leu Leu Val Asp
145 150 155 160

65 70 75 80

Lys Leu Thr Gln Arg Gln Val Asn Ile Thr Val Gln Lys Lys Val Ser
85 90 95

Gln Trp Trp Glu Arg Leu Thr Lys Gln Glu Lys Arg Pro Leu Phe Leu
100 105 110

Ala Pro Asp Phe Asp Arg Trp Leu Asp Glu Ser Asp Ala Glu Met Glu
115 120 125

Leu Arg Ala Lys Glu Glu Glu Arg Leu Asn Lys Leu Arg Leu Glu Ser
130 135 140

Glu Gly Ser Pro Glu Thr Leu Thr Asn Leu Arg Lys Gly Tyr Leu Phe
145 150 155 160

Met Tyr Asn Leu Val Gln Phe Leu Gly Phe Ser Trp Ile Phe Val Asn
165 170 175

Leu Thr Val Arg Phe Cys Ile Leu Gly Lys Glu Ser Phe Tyr Asp Thr
180 185 190

Phe His Thr Val Ala Asp Met Met Tyr Phe Cys Gln Met Leu Ala Val
195 200 205

Val Glu Thr Ile Asn Ala Ala Ile Gly Val Thr Thr Ser Pro Val Leu
210 215 220

Pro Ser Leu Ile Gln Leu Leu Gly Arg Asn Phe Ile Leu Phe Ile Ile
225 230 235 240

Phe Gly Thr Met Glu Glu Met Gln Asn Lys Ala Val Val Phe Phe Val
245 250 255

Phe Tyr Leu Trp Ser Ala Ile Glu Ile Phe Arg Tyr Ser Phe Tyr Met
260 265 270

Leu Thr Cys Ile Asp Met Asp Trp Lys Val Leu Thr Trp Leu Arg Tyr
275 280 285

Thr Leu Trp Ile Pro Leu Tyr Pro Leu Gly Cys Leu Ala Glu Ala Val
290 295 300

Ser Val Ile Gln Ser Ile Pro Ile Phe Asn Glu Thr Gly Arg Phe Ser
305 310 315 320

Phe Thr Leu Pro Tyr Pro Val Lys Ile Lys Val Arg Phe Ser Phe Phe
325 330 335

Leu Gln Ile Tyr Leu Ile Met Ile Phe Leu Gly Leu Tyr Ile Asn Phe

340 345

<210> 1389
<211> 64
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (17)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1389
Ser Leu Ile Cys Tyr Val Gln Ser Leu Lys Ala Thr Thr His Phe Phe
1 5 10 15

Xaa Lys Val Asp Ala Phe Ser Ala Val Leu Glu Ser Val Phe Cys Phe
20 25 30

Trp Gln Glu Ser Cys Lys Leu Cys Ile Leu Lys Gln Met Gln Lys Val
35 40 45

Val Leu Cys Lys Thr Phe Val Phe Cys Leu Ser Gln Ile Asn Ile Leu
50 55 60

<210> 1390
<211> 371
<212> PRT
<213> Homo sapiens

<400> 1390
Pro Pro Arg Ala Leu Gly Ser Val Ala Met Glu Asn Gln Val Leu Thr
1 5 10 15

Pro His Val Tyr Trp Ala Gln Arg His Arg Glu Leu Tyr Leu Arg Val
20 25 30

Glu Leu Ser Asp Val Gln Asn Pro Ala Ile Ser Ile Thr Glu Asn Val
35 40 45

Leu His Phe Lys Ala Gln Gly His Gly Ala Lys Gly Asp Asn Val Tyr
50 55 60

Glu Phe His Leu Glu Phe Leu Asp Leu Val Lys Pro Glu Pro Val Tyr

65 70 75 80

Gly Ile Pro Ala Ile Val Lys Leu Leu Asn Gln Pro Asn Gln Trp Pro
85 90 95

Leu Val Lys Ala Thr Ile Gly Leu Ile Arg Asn Leu Ala Leu Cys Pro
100 105 110

Ala Asn His Ala Pro Leu Gln Glu Ala Ala Val Ile Pro Arg Leu Val
115 120 125

Gln Leu Leu Val Lys Ala His Gln Asp Ala Gln Arg His Val Ala Ala
130 135 140

Gly Thr Gln Gln Pro Tyr Thr Asp Gly Val Arg Met Glu Glu Ile Val
145 150 155 160

Glu Gly Cys Thr Gly Ala Leu His Ile Leu Ala Arg Asp Pro Met Asn
165 170 175

Arg Met Glu Ile Phe Arg Leu Asn Thr Ile Pro Leu Phe Val Gln Leu
180 185 190

Leu Tyr Ser Ser Val Glu Asn Ile Gln Arg Val Ala Ala Gly Val Leu
195 200 205

Cys Glu Leu Ala Gln Asp Lys Glu Ala Ala Asp Ala Ile Asp Ala Glu
210 215 220

Gly Ala Ser Ala Pro Leu Met Glu Leu Leu His Ser Arg Asn Glu Gly
225 230 235 240

Thr Ala Thr Tyr Ala Ala Ala Val Leu Phe Arg Ile Ser Glu Asp Lys
245 250 255

Asn Pro Asp Tyr Arg Lys Arg Val Ser Val Glu Leu Thr Asn Ser Leu
260 265 270

Phe Lys His Asp Pro Ala Ala Trp Glu Ala Ala Gln Ser Met Ile Pro
275 280 285

Ile Asn Glu Pro Tyr Gly Asp Asp Xaa Asp Ala Thr Tyr Arg Pro Met
290 295 300

Tyr Ser Ser Asp Val Pro Leu Asp Pro Leu Glu Met His Met Asp Met
305 310 315 320

Asp Gly Asp Tyr Pro Ile Asp Thr Tyr Ser Asp Gly Leu Arg Pro Pro
325 330 335

Tyr Pro Thr Ala Asp His Met Leu Ala

<221> SITE
<222> (7)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (9)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1387
Xaa His Arg Gly Asn Gly Xaa Leu Xaa Val Pro Ser Glu Phe Pro Gly
1 5 10 15

Arg Pro Thr Arg Pro Gly Lys Leu Asp Ile Val Met His Lys Met Gln
20 25 30

Glu Lys Val Gln Ser Ile Asn Tyr Asn Pro Phe Asp Gln Lys Leu Tyr
35 40 45

Val Tyr Asn Asp Gly Tyr Leu Leu Asn Tyr Asp Leu Ser Val Leu Gln
50 55 60

Lys Pro Gln
65

<210> 1388
<211> 345
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (297)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1388
Val Trp Met Thr Ser Thr Ser Ser Pro Val Pro Arg Ala His Cys Ser
1 5 10 15

Asn Leu Thr Cys Asn Asn Ser Lys Asn Lys Thr Leu Val Thr Gln Asn
20 25 30

Ser Gly Val Glu Ala Leu Ile His Ala Ile Leu Arg Ala Gly Asp Lys
35 40 45

Asp Asp Ile Thr Glu Pro Ala Val Cys Ala Leu Arg His Leu Thr Ser
50 55 60

Arg His Pro Glu Ala Glu Met Ala Gln Asn Ser Val Arg Leu Asn Tyr

Glu Tyr Gln Glu Asp Ser Xaa His
50 55

<210> 1386
<211> 105
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (40)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1386
His Glu Leu Ala Ser Ser Glu Phe Ser His Glu Ala Val Lys Thr His
1 5 10 15

Ile Asp Thr Val Ile Asn Ala Leu Lys Thr Glu Arg Asp Val Ser Val
20 25 30

Arg Gln Arg Ala Ala Asp Leu Xaa Tyr Ala Met Cys Asp Arg Ser Asn
35 40 45

Ala Lys Gln Ile Val Ser Glu Met Leu Arg Tyr Leu Glu Thr Ala Asp
50 55 60

Tyr Ala Ile Arg Glu Glu Ile Val Leu Lys Val Ala Ile Leu Ala Glu
65 70 75 80

Lys Tyr Ala Val Asp Tyr Ser Trp Tyr Val Asp Thr Ile Leu Asn Leu
85 90 95

Ile Arg Ile Ala Gly Arg Leu Arg Glu
100 105

<210> 1387
<211> 67
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (1)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

Trp Ile Pro Pro Xaa Cys Arg Ser Trp Gly Leu Arg Ala Leu Glu Gln
130 135 140

Pro Met Leu Glu Ser Cys Leu Pro Pro Ser Ala Thr Val Pro Tyr Pro
145 150 155 160

Gly Thr Val Glu Trp Pro His Gly Gly Asp Gly Arg Pro Ala Glu
165 170 175

<210> 1384
<211> 57
<212> PRT
<213> Homo sapiens

<400> 1384
Ser Gln Ser Pro Cys Lys Gln Asp Lys Ser Lys Gly Gly Leu Ala Cys
1 5 10 15

Pro Ser Leu Phe His Thr Phe Leu Pro Gly Thr Glu Ser His Gly Glu
20 25 30

Phe Lys Thr Pro Ser His Ile Leu Leu Leu Lys Leu Val Gln Cys Thr
35 40 45

Thr Ser Ser Glu Glu Tyr Arg Met Ala
50 55

<210> 1385
<211> 56
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (55)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1385
Val Pro Gly Ser Gln Pro Leu Glu Thr Gly Ala Leu Arg Glu Asp Ser
1 5 10 15

Leu Pro Pro Arg Ile Leu Leu His Pro Trp Phe Glu Ser Val Leu Glu
20 25 30

Pro Gly Tyr Ile Asp Ser Glu Ile Gly Thr Ser Asp Gln Ile Val Pro
35 40 45

Glu Asp Pro Met Leu Gln Thr Asp Asp Thr Pro Ile Lys Arg Cys Leu
465 470 475 480

Gln Thr Lys Trp Pro Tyr Ile Glu Leu Leu Trp Thr Thr Asp Arg Ser
485 490 495

Pro Ser Leu Asn
500

<210> 1383
<211> 175
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (80)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (133)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1383
Leu Cys Asp Ser Glu Glu Val Ala Trp Glu Leu Gly Glu Ala Gln Arg
1 5 10 15

Met Pro Pro Gly Glu Ser Pro His His Gln Cys Ile Thr Ser Asn Val
20 25 30

Pro Leu Glu Arg Pro Pro Leu Cys Ser Val Met Phe Gln Lys Leu Leu
35 40 45

Met Lys Gln His Val Leu Val Ala Cys Ala Leu Ala Cys His Asp Ser
50 55 60

Pro Leu Thr Gly Pro Pro Val Lys Ser Lys Gly Leu Pro Ala Ala Xaa
65 70 75 80

Ser Glu Ala Ser Ala Glu Ser Ser His Pro His Gly Ser Gly Glu Val
85 90 95

Ile Thr Leu Ser Arg Arg Ser Asp His Thr Ser Ser Ser Pro Arg Gly
100 105 110

Leu Leu Ile Leu Gly Asp Asp Ser Ser Ser Glu His Leu Leu Gln Asp
115 120 125

Ala Leu Ala Val Glu Glu Leu Gly Phe Glu Arg Phe His Ala Leu Ile
195 200 205

Gln Lys Arg Ser Phe Arg Ser Leu Pro Glu Leu Lys Asp Ala Val Leu
210 215 220

Asp Gln Tyr Ser Met Trp Gly Asn Lys Phe Gly Val Leu Leu Phe Leu
225 230 235 240

Tyr Ser Val Leu Leu Thr Lys Gly Ile Glu Asn Ile Lys Asn Glu Ile
245 250 255

Glu Asp Ala Ser Glu Pro Leu Ile Asp Pro Val Tyr Gly His Gly Ser
260 265 270

Gln Ser Leu Ile Asn Leu Leu Leu Thr Gly His Ala Val Ser Asn Val
275 280 285

Trp Asp Gly Asp Arg Glu Cys Ser Gly Met Lys Leu Leu Gly Ile His
290 295 300

Glu Gln Ala Ala Val Gly Phe Leu Thr Leu Met Glu Ala Leu Arg Tyr
305 310 315 320

Cys Lys Val Gly Ser Tyr Leu Lys Ser Pro Lys Phe Pro Ile Trp Ile
325 330 335

Val Gly Ser Glu Thr His Leu Thr Val Phe Phe Ala Lys Asp Met Ala
340 345 350

Leu Val Ala Pro Glu Ala Pro Ser Glu Gln Ala Arg Arg Val Phe Gln
355 360 365

Thr Tyr Asp Pro Glu Asp Asn Gly Phe Ile Pro Asp Ser Leu Leu Glu
370 375 380

Asp Val Met Lys Ala Leu Asp Leu Val Ser Asp Pro Glu Tyr Ile Asn
385 390 395 400

Leu Met Lys Asn Lys Leu Asp Pro Glu Gly Leu Gly Ile Ile Leu Leu
405 410 415

Gly Pro Phe Leu Gln Glu Phe Phe Pro Asp Gln Gly Ser Ser Gly Pro
420 425 430

Glu Ser Phe Thr Val Tyr His Tyr Asn Gly Leu Lys Gln Ser Asn Tyr
435 440 445

Asn Glu Lys Val Met Tyr Val Glu Gly Thr Ala Val Val Met Gly Phe
450 455 460

580 585 590

Ser Ser Ser Ser Gly Ser Val Gly Glu Ser Ser Ser Lys Gly Pro Arg
595 600 605

Ser Ala Glu Thr Ser Trp Gly Asn Gln Asn
610 615

<210> 1382
<211> 500
<212> PRT
<213> Homo sapiens

<400> 1382
Gln Ala Trp Ser Leu Gln Val Ala Leu Ser Pro Phe Phe Phe Pro Ala
1 5 10 15

Ser Pro Ser Asn Ser Phe Ala Ala Ala Val Pro Gln Leu Leu Phe Pro
20 25 30

Glu Leu Pro Leu Pro His Val Pro Gly Gln Glu Ser Ala Lys Arg Arg
35 40 45

Ser Ala Arg Arg Phe Leu Ile Met Ser Glu Leu Thr Lys Glu Leu Met
50 55 60

Glu Leu Val Trp Gly Thr Lys Ser Ser Pro Gly Leu Ser Asp Thr Ile
65 70 75 80

Phe Cys Arg Trp Thr Gln Gly Phe Val Phe Ser Glu Ser Glu Gly Ser
85 90 95

Ala Leu Glu Gln Phe Glu Gly Gly Pro Cys Ala Val Ile Ala Pro Val
100 105 110

Gln Ala Phe Leu Leu Lys Lys Leu Leu Phe Ser Ser Glu Lys Ser Ser
115 120 125

Trp Arg Asp Cys Ser Glu Glu Glu Gln Lys Glu Leu Leu Cys His Thr
130 135 140

Leu Cys Asp Ile Leu Glu Ser Ala Cys Cys Asp His Ser Gly Ser Tyr
145 150 155 160

Cys Leu Val Ser Trp Leu Arg Gly Lys Thr Thr Glu Glu Thr Ala Ser
165 170 175

Ile Ser Gly Ser Pro Ala Glu Ser Ser Cys Gln Val Glu His Ser Ser
180 185 190

305 310 315 320

Pro Gly Val Asp Leu Thr Gln Leu Leu Asn Asn Met Arg Ser Gln Tyr
325 330 335

Glu Gln Leu Ala Glu Gln Asn Arg Lys Asp Ala Glu Ala Trp Phe Asn
340 345 350

Glu Lys Ser Lys Glu Leu Thr Thr Glu Ile Asp Asn Asn Ile Glu Gln
355 360 365

Ile Ser Ser Tyr Lys Ser Glu Ile Thr Glu Leu Arg Arg Asn Val Gln
370 375 380

Ala Leu Glu Ile Glu Leu Gln Ser Gln Leu Ala Leu Lys Gln Ser Leu
385 390 395 400

Glu Ala Ser Leu Ala Glu Thr Glu Gly Arg Tyr Cys Val Gln Leu Ser
405 410 415

Gln Ile Gln Ala Gln Ile Ser Ala Leu Glu Glu Gln Leu Gln Gln Ile
420 425 430

Arg Ala Glu Thr Glu Cys Gln Asn Thr Glu Tyr Gln Gln Leu Leu Asp
435 440 445

Ile Lys Ile Arg Leu Glu Asn Glu Ile Gln Thr Tyr Arg Ser Leu Leu
450 455 460

Glu Gly Glu Gly Ser Ser Gly Gly Gly Gly Arg Gly Gly Gly Ser Phe
465 470 475 480

Gly Gly Gly Tyr Gly Gly Gly Ser Ser Gly Gly Gly Ser Ser Gly Gly
485 490 495

Gly His Gly Gly Ser Ser Gly Gly Gly Tyr Xaa Gly Gly Ser Ser Gly
500 505 510

Gly Gly Ser Ser Gly Gly Gly Tyr Gly Gly Gly Xaa Pro Ala Ala Ala
515 520 525

Thr Ala Ala Val Pro Ala Ala Ala Thr Val Val Ala Val Pro Ala Ala
530 535 540

Ala Ala Ala Ala Thr Gly Ala Ala Leu Arg Arg Arg His Ser Ser Gly
545 550 555 560

Gly Xaa Tyr Gly Gly Gly Thr Ala Pro Ala Ala Asp Thr Ala Ala Ala
565 570 575

Gln Leu Arg Arg Arg Ile Arg Arg Arg His Ser Ser Gly Gly His Lys

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        35                  40                  45

Ser Ser Lys Gly Ser Leu Gly Gly Gly Phe Ser Ser Gly Gly Phe Ser
    50                  55                  60

Gly Gly Ser Phe Ser Arg Gly Ser Ser Gly Gly Gly Cys Phe Gly Gly
65                  70                  75                  80

Ser Ser Gly Gly Tyr Gly Gly Leu Gly Gly Phe Gly Gly Gly Ser Phe
                85                  90                  95

Arg Gly Ser Tyr Gly Ser Ser Ser Phe Gly Gly Ser Tyr Gly Gly Ser
            100                 105                 110

Phe Gly Gly Gly Ser Phe Gly Gly Gly Ser Phe Gly Gly Gly Ser Phe
        115                 120                 125

Gly Gly Gly Gly Phe Gly Gly Gly Gly Phe Gly Gly Gly Phe Gly Gly
    130                 135                 140

Gly Phe Gly Gly Asp Gly Gly Leu Leu Ser Gly Asn Glu Lys Val Thr
145                 150                 155                 160

Met Gln Asn Leu Asn Asp Arg Leu Ala Ser Tyr Leu Asp Lys Val Arg
                165                 170                 175

Ala Leu Glu Glu Ser Asn Tyr Glu Leu Glu Gly Lys Ile Lys Glu Trp
            180                 185                 190

Tyr Glu Lys His Gly Asn Ser His Gln Gly Glu Pro Arg Asp Tyr Ser
        195                 200                 205

Lys Tyr Tyr Lys Thr Ile Asp Asp Leu Lys Asn Gln Ile Leu Asn Leu
    210                 215                 220

Thr Thr Asp Asn Ala Asn Ile Leu Leu Gln Ile Asp Asn Ala Arg Leu
225                 230                 235                 240

Ala Ala Asp Asp Phe Arg Leu Lys Tyr Glu Asn Glu Val Ala Leu Arg
                245                 250                 255

Gln Ser Val Glu Ala Asp Ile Asn Gly Leu Arg Arg Val Leu Asp Glu
            260                 265                 270

Leu Thr Leu Thr Lys Ala Asp Leu Glu Met Gln Ile Glu Ser Leu Thr
        275                 280                 285

Glu Glu Leu Ala Tyr Leu Lys Lys Asn His Glu Glu Glu Met Lys Asp
    290                 295                 300

Leu Arg Asn Val Ser Thr Gly Asp Val Asn Val Glu Met Asn Ala Ala
```

Ser Cys Ala Asp Ile Val Ser Cys Val Ser Ala Val Ala Val Glu Glu
1 5 10 15

Leu Lys Leu Gly Lys Met Val Cys Ile Pro Cys Ile Val Ile Pro Val
20 25 30

Leu Leu Trp Ile Tyr Lys Lys Phe Leu Glu Pro Tyr Ile Tyr Pro Leu
35 40 45

Val Ser Pro Phe Val Ser Arg Ile Trp Pro Lys Lys Ala Ile Gln Glu
50 55 60

Ser Asn Asp Thr Asn Lys Gly Lys Val Asn Phe Lys Gly Ala Asp Met
65 70 75 80

Asn Gly Leu Pro Thr Lys Gly Pro Thr Glu Ile Cys Asp Lys Lys Lys
85 90 95

Asp

<210> 1381
<211> 618
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (507)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (524)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (562)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1381
Pro Arg Val Arg Pro Arg Val Arg Ser Ile Thr Met Ser Val Arg Tyr
1 5 10 15

Ser Ser Ser Lys His Tyr Ser Ser Ser Arg Ser Gly Gly Gly Gly Gly
20 25 30

Gly Gly Gly Cys Gly Gly Gly Gly Gly Val Ser Ser Leu Arg Ile Ser

Gly Arg Arg Arg Cys Pro Ala Ala Leu Gly Cys Arg Thr Asp Lys Ala
20 25 30

Trp Ala Thr Ala Pro Gln Lys Pro Thr Gln Leu Asp Ala Gly Ala Gly
35 40 45

Arg Arg Val Gly Asp Arg Val Ser Glu Gly Ala Ala Arg Ala Gly Gly
50 55 60

Arg Ala Pro Glu Gly Glu Arg Gly Gly Gly Gly Gly Ser Ala Ala Gly
65 70 75 80

Arg Ala Gly Arg Gly Met Ser Met Pro Asp Ala Met Pro Leu Pro Gly
85 90 95

Val Gly Glu Glu Leu Lys Gln Ala Lys Glu Ile Glu Asp Ala Glu Lys
100 105 110

Tyr Ser Phe Met Ala Thr Val Thr Lys Ala Pro Lys Lys Gln Ile Gln
115 120 125

Phe Ala Asp Asp Met Gln Glu Phe Thr Lys Phe Pro Thr Lys Thr Gly
130 135 140

Arg Arg Ser Leu Ser Arg Ser Ile Ser Gln Ser Ser Thr Asp Ser Tyr
145 150 155 160

Ser Ser Ala Ala Ser Tyr Thr Asp Ser Ser Asp Asp Glu Val Ser Pro
165 170 175

Arg Glu Lys Gln Gln Thr Asn Ser Lys Gly Ser Ser Asn Phe Cys Val
180 185 190

Lys Asn Ile Lys Gln Ala Glu Phe Gly Arg Arg Glu Ile Glu Ile Ala
195 200 205

Glu Gln Asp Met Ser Ala Leu Ile Ser Leu Arg Lys Arg Ala Gln Gly
210 215 220

Glu Lys Pro Leu Xaa Gly Xaa Lys Ile Xaa Gly Leu Thr His Tyr
225 230 235

<210> 1380
<211> 97
<212> PRT
<213> Homo sapiens

<400> 1380

His Ser Gly Arg Lys Lys
225 230

<210> 1378
<211> 75
<212> PRT
<213> Homo sapiens

<400> 1378
Gly Lys Gln Lys Pro Leu Ser Ser Ala Phe His Leu Gln Glu Arg Arg
1 5 10 15

Lys Asn Ser Cys Leu Leu Ser Val Ile Gln Phe Ala Cys Ile Leu Cys
20 25 30

Ser Cys Thr Asn Pro Tyr Arg Val Asn Leu Leu Ser Thr Ile Tyr Trp
35 40 45

Cys Leu Ile Glu Asn Asp Cys Leu Pro Ser Phe Leu Val Pro Phe Leu
50 55 60

Thr Val Leu Lys Tyr Leu Lys Cys Ile Asp Cys
65 70 75

<210> 1379
<211> 239
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (229)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (231)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (234)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1379
Arg Arg Gly Gln Val Gly Ala Arg Ser Cys Cys Phe Trp Phe Ser Cys
1 5 10 15

<222> (26)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (162)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1377
Ser Pro Ser Gly Ala Pro Gly Arg Pro Gly Leu Arg Arg Arg Arg Arg
1 5 10 15

Arg Arg Arg Arg Arg Ala Asp His Val Xaa Ala Lys Glu Asn Pro Cys
20 25 30

Arg Lys Phe Gln Ala Asn Ile Phe Asn Lys Ser Lys Cys Gln Asn Cys
35 40 45

Phe Lys Pro Arg Glu Ser His Leu Leu Asn Asp Glu Asp Leu Thr Gln
50 55 60

Ala Lys Pro Ile Tyr Gly Gly Trp Leu Leu Leu Ala Pro Asp Gly Thr
65 70 75 80

Asp Phe Asp Asn Pro Val His Arg Ser Arg Lys Trp Gln Arg Arg Phe
85 90 95

Phe Ile Leu Tyr Glu His Gly Leu Leu Arg Tyr Ala Leu Asp Glu Met
100 105 110

Pro Thr Thr Leu Pro Gln Gly Thr Ile Asn Met Asn Gln Cys Thr Asp
115 120 125

Val Val Asp Gly Glu Gly Arg Thr Gly Gln Lys Phe Ser Leu Cys Ile
130 135 140

Leu Thr Pro Glu Lys Glu His Phe Ile Arg Ala Glu Thr Lys Glu Ile
145 150 155 160

Val Xaa Gly Trp Leu Glu Met Leu Met Val Tyr Pro Arg Thr Asn Lys
165 170 175

Gln Asn Gln Lys Lys Lys Arg Lys Val Glu Pro Pro Thr Pro Gln Glu
180 185 190

Pro Gly Pro Ala Lys Trp Leu Leu Pro Ala Ala Ala Ala Ala Ala Ala
195 200 205

Ala Ala Ala Ala Ser Pro Val Leu Arg Lys Ser Pro Pro Pro Ser Pro
210 215 220

<222> (93)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1375
Glu Ala Val Asn Glu Gln Leu Ser Ser Glu Arg Ser Asn Leu Ala Gln
1 5 10 15

Val Ile Arg Gln Glu Phe Glu Asp Arg Leu Ala Ala Ser Glu Glu Glu
20 25 30

Thr Arg Gln Ala Lys Ala Glu Leu Ala Thr Leu Gln Ala Arg Gln Gln
35 40 45

Leu Glu Leu Glu Glu Val His Arg Arg Val Lys Thr Ala Leu Ala Arg
50 55 60

Lys Glu Glu Ala Val Ser Ser Leu Arg Thr Gln His Glu Val Ser Pro
65 70 75 80

Cys Gly Gln Pro Cys Trp Thr Ser Gly Leu Gly Xaa Xaa Leu Thr Leu
85 90 95

Trp Val Cys Cys
100

<210> 1376
<211> 45
<212> PRT
<213> Homo sapiens

<400> 1376
Ile Arg His Glu Glu Thr Leu Ser Pro Gly His Phe Lys Ser Ile Thr
1 5 10 15

Gln Lys Lys Thr Leu Ile Phe Thr Phe Lys Ser His Met Gln Leu Leu
20 25 30

Thr Leu Thr Ser Ala Val Ile Val Leu Ala Ile Ile Pro
35 40 45

<210> 1377
<211> 230
<212> PRT
<213> Homo sapiens

<220>
<221> SITE

20 25 30

Ala Ile His Ser Pro Arg Pro Pro Lys Met Leu Gly Leu Gln Ala
35 40 45

<210> 1374
<211> 114
<212> PRT
<213> Homo sapiens

<400> 1374
Ala Ala Thr Lys Val Thr Leu Ser Leu Asp Thr Ala Ser Val Leu Ser
1 5 10 15

Pro Cys Phe Thr Gly His Ser Ile Ser Leu Gln Pro Ser Leu Cys Ala
20 25 30

Ser Ala Ile Phe Thr His His Gly Ala Glu Val Arg Arg Gly Ser Leu
35 40 45

Gly Ile Trp Arg Pro Val Lys Asp Gln Ala Trp Arg Ala Gln Gly Pro
50 55 60

Thr Trp Ala Ser Ser Arg Gly Ala Pro Lys Gly Gln Glu His Pro Lys
65 70 75 80

Arg Arg Glu Gly Ser Gln Pro Pro Leu Thr Ala Ser Leu Gln Pro Ser
85 90 95

Pro Thr Leu Ile Thr Ile Ser Leu Gln Ala Phe Cys Leu Arg Asp Val
100 105 110

Ala Pro

<210> 1375
<211> 100
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (92)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE

180 185 190

Arg Leu Trp Ile Ala Asn Tyr Ser Leu Pro Arg Ala Met Lys Arg Leu
195 200 205

Glu Glu Ala Arg Leu His Lys Glu Ile Pro Glu Thr Thr Arg Thr Ser
210 215 220

Gln Met Gln Glu Leu His Lys Ser Leu Arg Ser Leu Asn Asn Phe Cys
225 230 235 240

Ser Gln Ile Gly Asp Asp Arg Pro Ile Ser Tyr Cys His Phe Ser Pro
245 250 255

Asn Ser Lys Met Leu Ala Thr Ala Cys Trp Ser Gly Leu Cys Lys Leu
260 265 270

Trp Ser Val Pro Asp Cys Asn Leu Leu His Thr Leu Arg Gly His Asn
275 280 285

Thr Asn Val Gly Ala Ile Val Phe His Pro Lys Ser Thr Val Ser Leu
290 295 300

Asp Pro Lys Asp Val Asn Leu Ala Ser Cys Ala Ala Asp Gly Ser Val
305 310 315 320

Lys Leu Trp Ser Leu Asp Arg
325

<210> 1373
<211> 47
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (15)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (22)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1373
Gly Thr His His Gln Ala Gln Pro Asn Phe Val Phe Phe Leu Xaa Arg
1 5 10 15

Trp Gly Phe Ile Thr Xaa Pro Arg Leu Ile Ser Asn Leu Trp Ala Gln

Thr Ala Thr Val Tyr Phe Lys Arg Phe Tyr Ala Arg Tyr Ser Leu Lys
100 105 110

Ser Ile Asp Pro Val Leu Met Ala Pro Thr Cys Val Phe Leu Ala Ser
115 120 125

Lys Val Xaa Gly Lys Lys Ile Phe Phe Phe Xaa Gly Gly
130 135 140

<210> 1372
<211> 327
<212> PRT
<213> Homo sapiens

<400> 1372
Lys Gly Val Phe Gly Phe Arg Trp Gly Leu Ala Ala Pro Glu Pro Ser
1 5 10 15

Met Ala Ser Ser Arg Ala Ser Ser Thr Ala Thr Lys Thr Lys Ala Pro
20 25 30

Asp Asp Leu Val Ala Pro Val Val Lys Lys Pro His Ile Tyr Tyr Gly
35 40 45

Ser Leu Glu Glu Lys Glu Arg Glu Arg Leu Ala Lys Gly Glu Ser Gly
50 55 60

Ile Leu Gly Lys Asp Gly Leu Lys Ala Gly Ile Glu Ala Gly Asn Ile
65 70 75 80

Asn Ile Thr Ser Gly Glu Val Phe Glu Ile Glu Glu His Ile Ser Glu
85 90 95

Arg Gln Ala Glu Val Leu Ala Glu Phe Glu Arg Arg Lys Arg Ala Arg
100 105 110

Gln Ile Asn Val Ser Thr Asp Asp Ser Glu Val Lys Ala Cys Leu Arg
115 120 125

Ala Leu Gly Glu Pro Ile Thr Leu Phe Gly Glu Gly Pro Ala Glu Arg
130 135 140

Arg Glu Arg Leu Arg Asn Ile Leu Ser Val Val Gly Thr Asp Ala Leu
145 150 155 160

Lys Lys Thr Lys Lys Asp Asp Glu Lys Ser Lys Lys Ser Lys Glu Glu
165 170 175

Tyr Gln Gln Thr Trp Tyr His Glu Gly Pro Asn Ser Leu Lys Val Ala

Glu Glu Glu Thr Asp Cys Gly Tyr Asp Tyr Met Glu Leu Phe Asp Gly
100 105 110

Tyr Asp Ser Thr Ala Pro Arg Leu Gly Arg Tyr Cys Gly Ser Xaa Pro
115 120 125

Pro Glu Glu Val Tyr Ser Ala Gly Asp Ser Ala Val Ser His Ser Ile
130 135 140

His His Thr Lys Lys Gly Phe His Leu Arg Tyr Thr Ser Thr Lys Phe
145 150 155 160

Gln Asp Thr Leu His Ser Arg Lys
165

<210> 1371
<211> 141
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (131)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (139)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1371
Phe Asp Arg Gly Ala Arg Leu Pro Asp Gly Leu Gly Leu Trp Ser Leu
1 5 10 15

Arg Gly Pro Leu Arg Arg Leu Val Leu Phe Tyr Gln Gly Lys Leu Cys
20 25 30

Ser Met Ala Gly Asn Phe Trp Gln Ser Ser His Tyr Leu Gln Trp Ile
35 40 45

Leu Asp Lys Gln Asp Leu Leu Lys Glu Arg Gln Lys Asp Leu Lys Phe
50 55 60

Leu Ser Glu Glu Glu Tyr Trp Lys Leu Gln Ile Phe Phe Thr Asn Val
65 70 75 80

Ile Gln Ala Leu Gly Glu His Leu Lys Leu Arg Gln Gln Val Ile Ala
85 90 95

1 5 10 15

Lys Ala Glu Val Ser Thr Gly Gly Asn Leu Leu Val Val Ser Pro Thr
20 25 30

Thr Leu Pro Arg Val Leu Ser Thr Lys Glu Val Lys Arg Thr Glu Lys
35 40 45

Glu Ile Ser Ile Ser Ala Ala Arg Ala Gly Ile Cys Leu Pro Asp Ser
50 55 60

Leu Cys Phe Leu Phe His Arg His Pro Phe Arg Arg Glu Leu His Gln
65 70 75 80

Phe Ile Met Arg Val Arg Glu Ala Lys Ala Leu Arg Cys Val Gln Gly
85 90 95

Val Thr

<210> 1370
<211> 168
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (127)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1370
Pro Ala Leu Gly Arg Phe Cys Gly Ser Lys Lys Pro Glu Pro Val Leu
1 5 10 15

Ala Thr Gly Ser Arg Met Phe Leu Arg Phe Tyr Ser Asp Asn Ser Val
20 25 30

Gln Arg Lys Gly Phe Gln Ala Ser His Ala Thr Glu Cys Gly Gly Gln
35 40 45

Val Arg Ala Asp Val Lys Thr Lys Asp Leu Tyr Ser His Ala Gln Phe
50 55 60

Gly Asp Asn Asn Tyr Pro Gly Gly Val Asp Cys Glu Trp Val Ile Val
65 70 75 80

Ala Glu Glu Gly Tyr Gly Val Glu Leu Val Phe Gln Thr Phe Glu Val
85 90 95

<222> (149)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (150)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1368
Gly Asp Ser Gln Gly Pro Ala Ser Asp Trp Arg Val Arg Asp Leu Arg
1 5 10 15

Pro Val Trp Gly Arg Trp Arg Pro Ala Gln His Leu Lys Ile Thr Asp
20 25 30

Ser Ala Gly His Ile Leu Tyr Ser Lys Glu Asp Ala Thr Lys Gly Lys
35 40 45

Phe Ala Phe Thr Thr Glu Asp Tyr Asp Met Phe Glu Val Cys Phe Glu
50 55 60

Ser Lys Gly Thr Gly Arg Ile Pro Asp Gln Leu Val Ile Leu Asp Met
65 70 75 80

Lys His Gly Val Glu Ala Lys Asn Tyr Glu Glu Ile Ala Lys Val Glu
85 90 95

Lys Leu Lys Pro Leu Glu Val Glu Leu Arg Arg Leu Glu Asp Leu Ser
100 105 110

Glu Ser Ile Val Asn Asp Phe Ala Tyr Met Lys Lys Arg Glu Glu Glu
115 120 125

Met Arg Asp Thr Asn Glu Ser Thr Asn Thr Arg Val Leu Tyr Phe Ser
130 135 140

Ile Phe Ser Met Xaa Xaa Leu Ile Gly Leu Ala Thr Trp Gln Val Phe
145 150 155 160

Tyr Leu Arg Arg Phe Phe Lys Ala Lys Lys Leu Ile Glu
165 170

<210> 1369
<211> 98
<212> PRT
<213> Homo sapiens

<400> 1369
Leu Cys Tyr Leu Asp Ile Cys Gly Lys Ala Glu Ser Phe Leu Thr Val

Val Glu Gln Arg Thr Pro Val Ser Val Pro Gln Met Gly Phe Val Lys
20 25 30

Val Val Lys Asn Lys Ala Tyr Phe Lys Arg Tyr Gln Val Lys Phe Arg
35 40 45

Arg Arg Arg Glu Gly Lys Thr Asp Tyr Tyr Ala Arg Lys Arg Leu Val
50 55 60

Ile Gln Asp Lys Asn Lys Tyr Asn Thr Pro Lys Tyr Arg Met Ile Val
65 70 75 80

Arg Val Thr Asn Arg Asp Ile Ile Cys Gln Ile Ala Tyr Ala Arg Ile
85 90 95

Glu Gly Asp Met Ile Val Cys Ala Ala Tyr Ala His Glu Leu Pro Lys
100 105 110

Tyr Gly Val Lys Val Gly Leu Thr Asn Tyr Ala Ala Ala Tyr Cys Thr
115 120 125

Gly Leu Leu Leu Ala Arg Arg Leu Leu Asn Arg Phe Gly Met Asp Lys
130 135 140

Ile Tyr Glu Gly Gln Val Glu Val Thr Gly Asp Glu Tyr Asn Val Glu
145 150 155 160

Ser Ile Asp Gly Gln Pro Gly Ala Phe Thr Cys Tyr Leu Asp Ala Gly
165 170 175

Leu Ala Arg Thr Thr Thr Gly Asn Lys Val Phe Gly Ala Leu Lys Gly
180 185 190

Ala Val Asp Gly Gly Leu Xaa Ile Pro Xaa Ser Thr Lys Arg Phe Pro
195 200 205

Gly Tyr Xaa Ser Glu Ser Lys Glu Phe Asn Ala Glu Val His Arg Lys
210 215 220

His Ile Met Gly Xaa Glu Trp Leu Gln Ile Thr Cys Ala Thr
225 230 235

<210> 1368
<211> 173
<212> PRT
<213> Homo sapiens

<220>
<221> SITE

<221> SITE
<222> (68)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1366
Arg His Cys Met Val Ser Ala Val Val Pro Leu Phe Ile Ser Pro Pro
1 5 10 15

Asp Xaa Phe Ile Pro His Leu Ile Phe Phe Leu Ala Ala Phe Asn Glu
20 25 30

Ser Phe Ile Leu Glu Thr Leu Tyr Ile Phe Gly Phe His Xaa Thr Ile
35 40 45

Leu Thr Leu Phe Cys Pro Val Thr Phe Leu Lys Lys Thr Lys Thr Lys
50 55 60

Asn Pro Phe Xaa Leu Phe Lys Phe Trp
65 70

<210> 1367
<211> 238
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (199)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (202)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (211)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (229)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1367
Gly Ile Asp Pro Arg Val Arg Leu Ala Pro Leu Gly Leu Gln Val Ser
1 5 10 15

Pro Val Ser Glu Gly Gly Cys Ser Cys
    210   215

<210> 1365
<211> 103
<212> PRT
<213> Homo sapiens

<400> 1365
Lys Ser Leu Asp Ser Val Glu Leu Ser Arg Ser Phe Thr Ile Tyr Ser
  1   5   10   15

Ser Val Cys Lys Leu Tyr Leu Leu Tyr Ser Gln Ser Ile Phe Thr Val
            20   25   30

Leu Thr Ile Asp Ser Phe Pro Leu Leu Ile Phe Phe Phe Val Asn Gly
        35   40   45

Ser Cys Asp Phe Arg Trp Gly Ile Phe Ser Ser Pro Lys Arg Ile Asp
    50   55   60

Ser Phe Ser Arg Phe Ile Ile Ile Asp Cys Gln Glu Arg Thr Leu Gln
 65   70   75   80

Gln Gly Cys Thr Leu Asn Ala Val Asp Gly Leu Ser Ser Arg Ile Tyr
                 85   90   95

Arg Leu Gly Leu Met Pro Met
            100

<210> 1366
<211> 73
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (18)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (46)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<213> Homo sapiens

<220>
<221> SITE
<222> (1)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (33)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1364

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Xaa Gly Gly Arg Ser Ser Ser Ser Thr Met Ser Thr Gly Gly Asp Phe
1               5                   10                  15

Gly Asn Pro Leu Arg Lys Phe Lys Leu Val Phe Leu Gly Glu Gln Ser
            20                  25                  30

Xaa Gly Lys Thr Ser Leu Ile Thr Arg Phe Met Tyr Asp Ser Phe Asp
        35                  40                  45

Asn Thr Tyr Gln Ala Thr Ile Gly Ile Asp Phe Leu Ser Lys Thr Met
    50                  55                  60

Tyr Leu Glu Asp Arg Thr Val Arg Leu Gln Leu Trp Asp Thr Ala Gly
65                  70                  75                  80

Gln Glu Arg Phe Arg Ser Leu Ile Pro Ser Tyr Ile Arg Asp Ser Thr
                85                  90                  95

Val Ala Val Val Val Tyr Asp Ile Thr Asn Val Asn Ser Phe Gln Gln
            100                 105                 110

Thr Thr Lys Trp Ile Asp Asp Val Arg Thr Glu Arg Gly Ser Asp Val
        115                 120                 125

Ile Ile Met Leu Val Gly Asn Lys Thr Asp Leu Ala Asp Lys Arg Gln
    130                 135                 140

Val Ser Ile Glu Glu Gly Glu Arg Lys Ala Lys Glu Leu Asn Val Met
145                 150                 155                 160

Phe Ile Glu Thr Ser Ala Lys Ala Gly Tyr Asn Val Lys Gln Leu Phe
                165                 170                 175

Arg Arg Val Ala Ala Ala Leu Pro Gly Met Glu Ser Thr Gln Asp Arg
            180                 185                 190

Ser Arg Glu Asp Met Ile Asp Ile Lys Leu Glu Lys Pro Gln Glu Gln
        195                 200                 205
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Glu Ser Asp Ala Phe His Asp Asn Leu Arg Ser Leu Asp Arg Asn Leu
130 135 140

Pro Ser Asp Ser Gln Asp Leu Gly Gln His Gly Leu Glu Glu Asp Phe
145 150 155 160

Met Leu

<210> 1363
<211> 113
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (106)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1363
Thr Pro Thr Pro Phe Gly Ser Ala Arg Ala Pro Gln Ala Arg Pro Gly
1 5 10 15

Arg Arg Asp Gly Arg Met Ser Gly Gly Arg Arg Lys Glu Glu Pro Pro
20 25 30

Gln Pro Gln Leu Ala Asn Gly Ala Leu Lys Val Ser Val Trp Ser Lys
35 40 45

Val Leu Arg Ser Asp Ala Ala Trp Glu Asp Lys Asp Glu Phe Leu Asp
50 55 60

Val Ile Tyr Trp Phe Arg Gln Ile Ile Ala Val Val Leu Gly Val Ile
65 70 75 80

Leu Gly Ser Phe Ala Ile Thr Arg Val Leu Gly Asn Ser Arg Ile Leu
85 90 95

Pro Asp Gln Cys Lys Ser Pro Cys Thr Xaa Thr Ser Ala Ile Thr Thr
100 105 110

Asp

<210> 1364
<211> 217
<212> PRT

Cys Pro Glu Leu Gln Ala Asp Gln Asn Cys Thr Gln Glu Cys Val Ser
50 55 60

Asp Ser Glu Cys Ala Asp Asn Leu Lys Cys Cys Ser Ala Gly Cys Ala
65 70 75 80

Thr Phe Cys Ser Leu Pro Asn Asp Lys Glu Gly Ser Cys Pro Gln Val
85 90 95

Asn Ile Asn Phe Pro Gln Leu Gly Leu Cys Arg Asp Gln Cys Gln Val
100 105 110

Asp Ser Gln Cys Pro Gly Gln Met Lys Cys Cys Arg Asn Gly Cys Gly
115 120 125

Lys Val Ser Cys Val Thr Pro Asn Phe
130 135

<210> 1362
<211> 162
<212> PRT
<213> Homo sapiens

<400> 1362
Thr Lys Leu Val Met Met Gln Lys Leu Leu Lys Cys Ser Arg Leu Val
1 5 10 15

Leu Ala Leu Ala Leu Ile Leu Val Leu Glu Ser Ser Val Gln Gly Tyr
20 25 30

Pro Thr Gln Arg Ala Arg Tyr Gln Trp Val Arg Cys Asn Pro Asp Ser
35 40 45

Asn Ser Ala Asn Cys Leu Glu Glu Lys Gly Pro Met Phe Glu Leu Leu
50 55 60

Pro Gly Glu Ser Asn Lys Ile Pro Arg Leu Arg Thr Asp Leu Phe Pro
65 70 75 80

Lys Thr Arg Ile Gln Asp Leu Asn Arg Ile Phe Pro Leu Ser Glu Asp
85 90 95

Tyr Ser Gly Ser Gly Phe Gly Ser Gly Ser Gly Ser Gly Ser Gly Ser
100 105 110

Gly Ser Gly Phe Leu Thr Glu Met Glu Gln Asp Tyr Gln Leu Val Asp
115 120 125

165 170 175

Leu Leu Asp Val Gln Arg Val Pro Ser Phe Glu Ser Phe Glu Asp Asp
180 185 190

Cys Ser Gln Ser Leu Cys Leu Asn Lys Pro Thr Met Ser Phe Lys Asp
195 200 205

Tyr Ile Gln Glu Arg Ser Asp Pro Val Glu Gln Gly Lys Pro Val Ile
210 215 220

Pro Ala Ala Val Leu Ala Gly Phe Thr Gly Ser Gly Pro Ile Gln Leu
225 230 235 240

Trp Gln Phe Leu Leu Glu Leu Leu Ser Asp Lys Ser Cys Gln Ser Phe
245 250 255

Ile Ser Trp Thr Gly Asp Gly Trp Glu Phe Lys Leu Ala Asp Pro Asp
260 265 270

Glu Val Ala Arg Arg Trp Gly Lys Arg Lys Asn Lys Pro Lys Met Asn
275 280 285

Tyr Glu Lys Leu Ser Arg Gly Leu Arg Tyr Tyr Tyr Asp Lys Asn Ile
290 295 300

Ile His Lys Thr Ser Gly Lys Arg Tyr Val Tyr Arg Phe Val Cys Asp
305 310 315 320

Leu Gln Asn Leu Leu Gly Phe Thr Pro Glu Glu Leu His Ala Ile Leu
325 330 335

Gly Val Gln Pro Asp Thr Glu Asp
340

<210> 1361
<211> 137
<212> PRT
<213> Homo sapiens

<400> 1361
Ala Ser Ala His Thr Cys Thr Pro Pro Gly His Ser Thr Met Pro Ala
1 5 10 15

Cys Arg Leu Gly Pro Leu Ala Ala Ala Leu Leu Leu Ser Leu Leu Leu
20 25 30

Phe Gly Phe Thr Leu Val Ser Gly Thr Gly Ala Glu Lys Thr Gly Val
35 40 45

Met Ala Phe Lys Leu Lys Ser Lys Ser Cys His Asp Leu Ser Val Leu
325 330 335

<210> 1360
<211> 344
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (2)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1360
Thr Xaa Asn Leu Gln Arg Phe Gly Met Asn Gly Gln Met Leu Cys Asn
1 5 10 15

Leu Gly Lys Glu Arg Phe Leu Glu Leu Ala Pro Asp Phe Val Gly Asp
20 25 30

Ile Leu Trp Glu His Leu Glu Gln Met Ile Lys Glu Asn Gln Glu Lys
35 40 45

Thr Glu Asp Gln Tyr Glu Glu Asn Ser His Leu Thr Ser Val Pro His
50 55 60

Trp Ile Asn Ser Asn Thr Leu Gly Phe Gly Thr Glu Gln Ala Pro Tyr
65 70 75 80

Gly Met Gln Thr Gln Asn Tyr Pro Lys Gly Gly Leu Leu Asp Ser Met
85 90 95

Cys Pro Ala Ser Thr Pro Ser Val Leu Ser Ser Glu Gln Glu Phe Gln
100 105 110

Met Phe Pro Lys Ser Arg Leu Ser Ser Val Ser Val Thr Tyr Cys Ser
115 120 125

Val Ser Gln Asp Phe Pro Gly Ser Asn Leu Asn Leu Leu Thr Asn Asn
130 135 140

Ser Gly Thr Pro Lys Asp His Asp Ser Pro Glu Asn Gly Ala Asp Ser
145 150 155 160

Phe Glu Ser Ser Asp Ser Leu Leu Gln Ser Trp Asn Ser Gln Ser Ser

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Arg Gln Gly Thr Val Gly Met Gln Pro Gln Gln Gln Arg Trp Ser Ile
     50                  55                  60

Pro Ala Asp Gly Arg His Leu Met Val Gln Lys Glu Pro His Gln Tyr
65                  70                  75                  80

Ser His Arg Asn Arg His Ser Ala Thr Pro Glu Asp His Cys Arg Arg
                85                  90                  95

Ser Trp Ser Ser Asp Ser Thr Asp Ser Val Ile Ser Ser Glu Ser Gly
            100                 105                 110

Asn Thr Tyr Tyr Arg Val Val Leu Ile Gly Glu Gln Gly Val Gly Lys
        115                 120                 125

Ser Thr Leu Ala Asn Ile Phe Ala Gly Val His Asp Ser Met Asp Ser
    130                 135                 140

Asp Cys Glu Val Leu Gly Glu Asp Thr Tyr Glu Arg Thr Leu Met Val
145                 150                 155                 160

Asp Gly Glu Ser Ala Thr Ile Ile Leu Leu Asp Met Trp Glu Asn Lys
                165                 170                 175

Gly Glu Asn Glu Trp Leu His Asp His Cys Met Gln Val Gly Asp Ala
            180                 185                 190

Tyr Leu Ile Val Tyr Ser Ile Thr Asp Arg Ala Ser Phe Glu Lys Ala
        195                 200                 205

Ser Glu Leu Arg Ile Gln Leu Arg Arg Ala Arg Gln Thr Glu Asp Ile
    210                 215                 220

Xaa Ile Ile Leu Val Xaa Asn Lys Ser Asp Leu Val Arg Cys Arg Glu
225                 230                 235                 240

Val Ser Val Ser Glu Gly Arg Ala Cys Ala Val Val Phe Asp Cys Lys
                245                 250                 255

Phe Ile Glu Thr Ser Ala Ala Val Gln His Asn Val Lys Glu Leu Phe
            260                 265                 270

Glu Gly Ile Val Arg Gln Val Arg Leu Arg Arg Ser Ser Lys Glu Lys
        275                 280                 285

Asn Glu Arg Arg Leu Ala Tyr Gln Lys Arg Lys Glu Ser Met Pro Arg
    290                 295                 300

Lys Ala Arg Arg Phe Trp Gly Lys Ile Val Ala Lys Asn Asn Lys Asn
305                 310                 315                 320
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His Pro Phe Ile Val Glu Leu Ala Tyr Ala Phe Gln Thr Gly Gly Lys
115 120 125

Xaa Tyr Leu Ile Leu Glu Cys Leu Ser Gly Gly Glu Leu Phe Thr His
130 135 140

Leu Gly Ala Arg Gly His Leu Pro Gly Lys Ile Arg Pro Ala Ser Thr
145 150 155 160

Trp Leu Arg Ser Arg Trp Pro Trp Xaa Ile Ser Thr Pro Arg Ala Ser
165 170 175

Ser Thr Gly Asp Leu Lys Pro Glu Glu His His Gly Ser Ala Ala Arg
180 185 190

Ala His Ile Xaa Thr Asp Arg Leu Leu Asp Phe Trp Gln Gly Val Leu
195 200 205

Phe His Gly Gly Arg Pro Ser Ile Asp Asn Phe Leu Xaa Ala Thr Ile
210 215 220

<210> 1359
<211> 336
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (225)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (230)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1359
Gly Gly Arg Pro Glu Thr Glu Lys Gly Glu Ser Gly Ser Phe Pro Ala
1 5 10 15

Arg Arg Thr Phe Glu Val Glu Lys Arg Thr Pro Gly Thr Cys Ala Gln
20 25 30

His Trp Asp Phe Leu Asp Ser Thr Met Thr Leu Asn Asn Val Thr Met
35 40 45

<210> 1358
<211> 224
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (71)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (129)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (169)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (196)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (221)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1358
Val Ser Gln Cys Ala Ala Arg Tyr Gly Pro Thr Gly Pro Arg Gly Arg
1 5 10 15

Arg Arg His Gly Ala Val Phe Asp Leu Asp Leu Glu Thr Glu Glu Gly
20 25 30

Ser Glu Gly Glu Gly Glu Pro Glu Leu Ser Pro Ala Asp Ala Cys Pro
35 40 45

Leu Ala Glu Leu Arg Ala Ala Gly Leu Glu Pro Val Gly His Tyr Glu
50 55 60

Glu Val Phe Gln Val Arg Xaa Val Gln Gly Thr Asn Leu Gly Lys Ile
65 70 75 80

Tyr Ala Met Lys Val Leu Arg Lys Ala Lys Ile Val Arg Asn Ala Lys
85 90 95

Asp Thr Ala His Thr Arg Ala Glu Arg Asn Ile Leu Glu Ser Val Lys
100 105 110

<210> 1357
<211> 201
<212> PRT
<213> Homo sapiens

<400> 1357
Ala Leu Ile Met Ser Phe Ile Phe Glu Trp Ile Tyr Asn Gly Phe Ser
1   5   10   15

Ser Val Leu Gln Phe Leu Gly Leu Tyr Lys Lys Ser Gly Lys Leu Val
            20   25   30

Phe Leu Gly Leu Asp Asn Ala Gly Lys Thr Thr Leu Leu His Met Leu
        35   40   45

Lys Asp Asp Arg Leu Gly Gln His Val Pro Thr Leu His Pro Thr Ser
    50   55   60

Glu Glu Leu Thr Ile Ala Gly Met Thr Phe Thr Thr Phe Asp Leu Gly
65   70   75   80

Gly His Glu Gln Ala Arg Arg Val Trp Lys Asn Tyr Leu Pro Ala Ile
                85   90   95

Asn Gly Ile Val Phe Leu Val Asp Cys Ala Asp His Ser Arg Leu Val
            100   105   110

Glu Ser Lys Val Glu Leu Asn Ala Leu Met Thr Asp Glu Thr Ile Ser
        115   120   125

Asn Val Pro Ile Leu Ile Leu Gly Asn Lys Ile Asp Arg Thr Asp Ala
    130   135   140

Ile Ser Glu Glu Lys Leu Arg Glu Ile Phe Gly Leu Tyr Gly Gln Thr
145   150   155   160

Thr Gly Lys Gly Asn Val Thr Leu Lys Glu Leu Asn Ala Arg Pro Met
                165   170   175

Glu Val Phe Met Cys Ser Val Leu Lys Arg Gln Gly Tyr Gly Glu Gly
            180   185   190

Phe Arg Trp Leu Ser Gln Tyr Ile Asp
        195   200

            100   105   110

Gln Glu Ser Asp Pro Glu Asp Asp Asp Val Lys Lys Pro Ala Leu Gln
        115   120   125

Ser Ser Val Val Ala Thr Ser Lys Glu Arg Thr Arg Arg Asp Leu Ile
    130   135   140

Gln Asp Gln Asn Met Asp Glu Lys Gly Lys Gln Arg Asn Arg Arg Ile
145   150   155   160

Phe Gly Leu Leu Met Gly Thr Leu Gln Lys Phe Lys Gln Glu Ser Thr
                165   170   175

Val Ala Thr Glu Arg Gln Lys Arg Arg Gln Glu Ile Glu Gln Lys Leu
            180   185   190

Glu Val Gln Ala Glu Glu Glu Arg Lys Gln Val Glu Asn Glu Arg Arg
        195   200   205

Glu Leu Phe Glu Glu Arg Arg Ala Lys Gln Thr Glu Leu Arg Leu Leu
    210   215   220

Glu Gln Lys Val Glu Leu Ala Gln Leu Gln Glu Glu Trp Asn Glu His
225   230   235   240

Asn Ala Lys Ile Ile Lys Tyr Ile Arg Thr Lys Thr Lys Pro His Leu
                245   250   255

Phe Tyr Ile Pro Gly Arg Met Cys Pro Ala Thr Gln Lys Leu Ile Glu
            260   265   270

Glu Ser Gln Arg Lys Met Asn Ala Leu Phe Glu Gly Arg Arg Ile Glu
        275   280   285

Phe Ala Glu Gln Ile Asn Lys Met Glu Ala Arg Pro Arg Arg Gln Ser
    290   295   300

Met Lys Glu Lys Glu His Gln Val Val Arg Asn Glu Glu Gln Lys Ala
305   310   315   320

Glu Gln Glu Glu Gly Lys Val Ala Gln Arg Glu Glu Glu Leu Glu Glu
                325   330   335

Thr Gly Asn Gln His Asn Asp Val Glu Lys Lys Glu Lys Lys Gly Lys
            340   345   350

Glu Glu Lys Lys Glu Arg Lys Lys Arg Lys Glu Arg Lys Glu Lys Lys
        355   360   365

Leu Glu Lys Ser Trp Leu Pro Gln Asn Cys Thr Leu Val Asp Met Lys
195 200 205

Ile Glu Phe Gly Val Asp Val Thr Thr Lys Glu Ile Val Leu Ala Asp
210 215 220

Val Ile Asp Asn Asp Ser Trp Arg Leu Trp Pro Ser Gly Asp Arg Ser
225 230 235 240

Gln Gln Lys Asp Lys Gln Ser Tyr Arg Asp Leu Lys Glu Val Thr Pro
245 250 255

Glu Gly Leu Gln Met Val Lys Lys Asn Phe Glu Trp Val Ala Glu Arg
260 265 270

Val Glu Leu Leu Leu Lys Ser Glu Ser Gln Cys Arg Val Val Val Leu
275 280 285

Met Gly Ser Thr Ser Asp Leu Gly His Cys Glu Lys Ile Lys Lys Ala
290 295 300

Cys Gly Asn Phe Xaa His Ser Met Val Asn Phe Glu
305 310 315

<210> 1356
<211> 368
<212> PRT
<213> Homo sapiens

<400> 1356
Pro Gly Ser Ala Cys Lys Ala Val Ser Ser Leu Pro Gln Glu Lys Met
1 5 10 15

Ala Val Ala Val Arg Thr Leu Gln Glu Gln Leu Glu Lys Ala Lys Glu
20 25 30

Ser Leu Lys Asn Val Asp Glu Asn Ile Arg Lys Leu Thr Gly Arg Asp
35 40 45

Pro Asn Asp Val Arg Pro Ile Gln Ala Arg Leu Leu Ala Leu Ser Gly
50 55 60

Pro Gly Gly Gly Arg Gly Arg Gly Ser Leu Leu Leu Arg Arg Gly Phe
65 70 75 80

Ser Asp Ser Gly Gly Gly Pro Pro Ala Lys Gln Arg Asp Leu Glu Gly
85 90 95

Ala Val Ser Arg Leu Gly Gly Glu Arg Arg Thr Arg Arg Glu Ser Arg

210

<210> 1355
<211> 316
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (309)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1355
Ser Ser Ala Ser Leu Pro Gly Ala Val Ala Ala Leu Ser Pro Leu Arg
1 5 10 15

Ile Met Ala Thr Ala Glu Val Leu Asn Ile Gly Lys Lys Leu Tyr Glu
20 25 30

Gly Lys Thr Lys Glu Val Tyr Glu Leu Leu Asp Ser Pro Gly Lys Val
35 40 45

Leu Leu Gln Ser Lys Asp Gln Ile Thr Ala Gly Asn Ala Ala Arg Lys
50 55 60

Asn His Leu Glu Gly Lys Ala Ala Ile Ser Asn Lys Ile Thr Ser Cys
65 70 75 80

Ile Phe Gln Leu Leu Gln Glu Ala Gly Ile Lys Thr Ala Phe Thr Arg
85 90 95

Lys Cys Gly Glu Thr Ala Phe Ile Ala Pro Gln Cys Glu Met Ile Pro
100 105 110

Ile Glu Trp Val Cys Arg Arg Ile Ala Thr Gly Ser Phe Leu Lys Arg
115 120 125

Asn Pro Gly Val Lys Glu Gly Tyr Lys Phe Tyr Pro Pro Lys Val Glu
130 135 140

Leu Phe Phe Lys Asp Asp Ala Asn Asn Asp Pro Gln Trp Ser Glu Glu
145 150 155 160

Gln Leu Ile Ala Ala Lys Phe Cys Phe Ala Gly Leu Leu Ile Gly Gln
165 170 175

Thr Glu Val Asp Ile Met Ser His Ala Thr Gln Ala Ile Phe Glu Ile
180 185 190

<220>
<221> SITE
<222> (192)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (208)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1354
Ile Met Lys Leu Leu Thr Arg Ala Gly Ser Phe Ser Arg Phe Tyr Ser
1 5 10 15

Leu Lys Val Ala Pro Lys Val Lys Ala Thr Ala Ala Pro Ala Gly Ala
20 25 30

Pro Pro Gln Pro Gln Asp Leu Glu Phe Thr Lys Leu Pro Asn Gly Leu
35 40 45

Val Ile Ala Ser Leu Glu Asn Tyr Ser Pro Val Ser Arg Ile Gly Leu
50 55 60

Phe Ile Lys Ala Gly Ser Arg Tyr Glu Asp Phe Ser Asn Leu Gly Thr
65 70 75 80

Thr His Leu Leu Arg Leu Thr Ser Ser Leu Thr Thr Lys Gly Ala Ser
85 90 95

Ser Phe Lys Ile Thr Arg Gly Ile Glu Ala Val Gly Gly Lys Leu Ser
100 105 110

Val Thr Ala Thr Arg Glu Asn Met Ala Tyr Thr Val Glu Cys Leu Arg
115 120 125

Gly Asp Val Asp Ile Leu Met Glu Phe Leu Leu Asn Val Thr Thr Ala
130 135 140

Pro Glu Phe Arg Arg Trp Glu Val Ala Asp Leu Gln Pro Gln Leu Lys
145 150 155 160

Ile Asp Lys Ala Val Ala Phe Gln Asn Pro Gln Thr His Val Ile Glu
165 170 175

Asn Leu His Ala Ala Ala Tyr Arg Asn Ala Leu Ala Asn Pro Leu Xaa
180 185 190

Cys Pro Asp Tyr Arg Ile Gly Lys Val Thr Ser Glu Glu Val Pro Xaa
195 200 205

Lys Leu

35 40 45

Glu Glu Ser Val Val Leu Ile Tyr Asp Pro Ile Lys Thr Ala Gln Gly
50 55 60

Ser Leu Ser Leu Lys Ala Tyr Arg Leu Thr Pro Lys Leu Met Glu Val
65 70 75 80

Cys Lys Glu Lys Asp Phe Ser Pro Glu Ala Leu Lys Lys Ala Asn Ile
85 90 95

Thr Phe Glu Tyr Met Phe Glu Glu Val Pro Ile Val Ile Lys Asn Ser
100 105 110

His Leu Ile Asn Val Leu Met Trp Glu Leu Glu Lys Lys Ser Ala Val
115 120 125

Ala Asp Lys His Glu Leu Leu Ser Leu Ala Ser Ser Asn His Leu Gly
130 135 140

Lys Asn Leu Gln Leu Leu Met Asp Arg Val Asp Glu Met Ser Gln Asp
145 150 155 160

Ile Val Lys Tyr Asn Thr Tyr Met Arg Asn Thr Ser Lys Gln Gln Gln
165 170 175

Gln Lys His Gln Tyr Gln Gln Arg Arg Gln Gln Glu Asn Met Gln Arg
180 185 190

Gln Ser Arg Gly Glu Pro Pro Leu Pro Glu Glu Asp Leu Ser Lys Leu
195 200 205

Phe Lys Pro Pro Gln Pro Pro Ala Arg Met Asp Ser Leu Leu Ile Ala
210 215 220

Gly Gln Ile Asn Thr Tyr Cys Gln Asn Ile Lys Glu Phe Thr Ala Gln
225 230 235 240

Asn Leu Gly Lys Leu Phe Met Ala Gln Ala Leu Gln Glu Tyr Asn Asn
245 250 255

<210> 1354
<211> 210
<212> PRT
<213> Homo sapiens

Lys Phe Tyr Glu Ala Phe Ser Lys Asn Leu Lys Leu Gly Ile His Glu
260 265 270

Asp Ser Thr Asn Arg Arg Arg Leu Ser Glu Leu Leu Arg Tyr His Thr
275 280 285

Ser Gln Ser Gly Asp Glu Met Thr Ser Leu Ser Glu Tyr Val Ser Arg
290 295 300

Met Lys Glu Thr Gln Lys Ser Ile Tyr Tyr Ile Thr Gly Glu Ser Lys
305 310 315 320

Glu Gln Val Ala Asn Ser Ala Phe Val Glu Arg Val Arg Lys Arg Gly
325 330 335

Phe Glu Val Val Tyr Met Thr Glu Pro Ile Asp Glu Tyr Cys Val Gln
340 345 350

Gln Leu Lys Glu Phe Asp Gly Lys Ser Leu Val Ser Val Thr Lys Glu
355 360 365

Gly Leu Glu Leu Pro Glu Asp Glu Glu Glu Lys Lys Lys Met Glu Glu
370 375 380

Ser Lys Ala Lys Phe Glu Asn Leu Cys Lys Leu Met Gly Tyr Met Met
385 390 395 400

Ala Lys Lys His Trp Arg Ser Thr Leu Thr Thr Pro Phe Leu Glu
405 410 415

<210> 1353
<211> 256
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (10)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1353
Ser Pro Ile Ser Asp Gly Asn Asp Ala Xaa Leu Arg His Val Asn Ile
1 5 10 15

Asp His Leu His Val Gly Trp Tyr Gln Ser Thr Tyr Tyr Gly Ser Phe
20 25 30

Val Thr Arg Ala Leu Leu Asp Ser Gln Phe Ser Tyr Gln His Ala Ile

<212> PRT
<213> Homo sapiens

<400> 1352
Trp Ile Pro Arg Ala Ala Gly Ile Arg His Glu Leu His Leu Lys Glu
1 5 10 15

Asp Gln Thr Glu Tyr Leu Glu Glu Arg Arg Val Lys Glu Val Val Lys
20 25 30

Lys His Ser Gln Phe Ile Gly Tyr Pro Ile Thr Leu Tyr Leu Glu Lys
35 40 45

Glu Arg Glu Lys Glu Ile Ser Asp Asp Glu Ala Glu Glu Glu Lys Gly
50 55 60

Glu Lys Glu Glu Glu Asp Lys Asp Asp Glu Glu Lys Pro Lys Ile Glu
65 70 75 80

Asp Val Gly Ser Asp Glu Glu Asp Asp Ser Gly Lys Asp Lys Lys Lys
85 90 95

Lys Thr Lys Lys Ile Lys Glu Lys Tyr Ile Asp Gln Glu Glu Leu Asn
100 105 110

Lys Thr Lys Pro Ile Trp Thr Arg Asn Pro Asp Asp Ile Thr Gln Glu
115 120 125

Glu Tyr Gly Glu Phe Tyr Lys Ser Leu Thr Asn Asp Trp Glu Asp His
130 135 140

Leu Ala Val Lys His Phe Ser Val Glu Gly Gln Leu Glu Phe Arg Ala
145 150 155 160

Leu Leu Phe Ile Pro Arg Arg Ala Pro Phe Asp Leu Phe Glu Asn Lys
165 170 175

Lys Lys Lys Asn Asn Ile Lys Leu Tyr Val Arg Arg Val Phe Ile Met
180 185 190

Asp Ser Cys Asp Glu Leu Ile Pro Glu Tyr Leu Asn Phe Ile Arg Gly
195 200 205

Val Val Asp Ser Glu Asp Leu Pro Leu Asn Ile Ser Arg Glu Met Leu
210 215 220

Gln Gln Ser Lys Ile Leu Lys Val Ile Arg Lys Asn Ile Val Lys Lys
225 230 235 240

Cys Leu Glu Leu Phe Ser Glu Leu Ala Glu Asp Lys Glu Asn Tyr Lys
245 250 255

<220>
<221> SITE
<222> (159)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (163)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1351
Gly Ser Ala Pro Glu Thr Ser Pro Glu Lys Cys Ser Ser Arg Ala Lys
1   5   10   15

Ser Cys Lys Val Ile Arg Lys Asn Ile Val Lys Lys Cys Leu Glu Leu
            20   25   30

Phe Ser Glu Leu Ala Glu Asp Lys Glu Asn Tyr Lys Lys Phe Tyr Glu
        35   40   45

Ala Phe Ser Lys Asn Leu Lys Leu Gly Ile His Glu Asp Ser Thr Asn
    50   55   60

Arg Arg Arg Leu Ser Glu Leu Leu Arg Tyr His Thr Ser Gln Ser Gly
65   70   75   80

Asp Glu Met Thr Ser Leu Ser Glu Tyr Val Ser Arg Met Lys Glu Thr
                85   90   95

Gln Lys Ser Ile Tyr Tyr Ile Thr Gly Glu Ser Lys Glu Gln Val Ala
            100   105   110

Asn Ser Ala Phe Val Glu Arg Val Arg Lys Arg Gly Phe Xaa Val Val
        115   120   125

Tyr Met Xaa Glu Pro Ile Asp Xaa Xaa Cys Val Gln Gln Leu Xaa Glu
    130   135   140

Phe Xaa Xaa Lys Xaa Leu Val Xaa Val Thr Lys Glu Val Trp Xaa Cys
145   150   155   160

Leu Arg Xaa Arg Arg Glu Glu Glu Asp Gly Arg Glu Gln Gly Lys Phe
                165   170   175

Arg Pro Cys Ser Ser Glu Glu Ser
            180

<210> 1352
<211> 415

<210> 1351
<211> 184
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (126)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (131)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (136)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (137)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (143)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (146)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (147)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (149)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (152)
<223> Xaa equals any of the naturally occurring L-amino acids

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            35                  40                  45

Val Tyr Gln Ala Xaa Leu Ala Glu Gln Ala Glu Arg Tyr Asp Glu Met
        50                  55                  60

Val Glu Ser Met Lys Lys Val Ala Gly Met Asp Val Glu Leu Thr Val
65                  70                  75                  80

Glu Glu Arg Asn Leu Leu Ser Val Ala Tyr Lys Asn Val Ile Gly Ala
                85                  90                  95

Arg Arg Ala Ser Trp Arg Ile Ile Ser Ser Ile Glu Gln Lys Glu Glu
            100                 105                 110

Asn Lys Gly Gly Glu Asp Lys Leu Lys Met Ile Arg Glu Tyr Arg Gln
        115                 120                 125

Met Val Glu Thr Glu Leu Lys Leu Ile Cys Cys Asp Ile Leu Asp Val
    130                 135                 140

Leu Asp Lys His Leu Ile Pro Ala Ala Asn Thr Gly Glu Ser Lys Val
145                 150                 155                 160

Phe Tyr Tyr Lys Met Lys Gly Asp Tyr His Arg Tyr Leu Ala Glu Phe
                165                 170                 175

Ala Thr Gly Asn Asp Arg Lys Glu Ala Ala Glu Asn Ser Leu Val Ala
            180                 185                 190

Tyr Lys Ala Ala Ser Asp Ile Ala Met Thr Glu Leu Pro Pro Thr His
        195                 200                 205

Pro Ile Arg Leu Gly Leu Ala Leu Asn Phe Ser Val Phe Tyr Tyr Glu
    210                 215                 220

Ile Leu Asn Ser Pro Asp Arg Ala Cys Arg Leu Ala Lys Ala Ala Phe
225                 230                 235                 240

Asp Asp Ala Ile Ala Glu Leu Asp Thr Leu Ser Glu Glu Ser Tyr Lys
                245                 250                 255

Asp Ser Thr Leu Ile Met Gln Leu Leu Arg Asp Asn Leu Thr Leu Trp
            260                 265                 270

Thr Ser Asp Met Gln Gly Asp Gly Glu Glu Gln Asn Lys Glu Ala Leu
        275                 280                 285

Gln Asp Val Glu Asp Glu Asn Gln
    290                 295
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<400> 1349
Arg Cys Pro Ile Ala Ser Glu Val Pro Trp Thr Ile Thr Glu Ala Glu
1 5 10 15

Leu Arg Val Thr Leu Thr Val Glu Gly Lys Ser Ile Pro Cys Leu Ile
20 25 30

Asp Thr Gly Ala Thr His Ser Thr Leu Pro Ser Phe Gln Gly Pro Val
35 40 45

Ser Leu Ala Pro Ile Thr Val Val Gly Ile Asp Gly Gln Ala Ser Lys
50 55 60

Pro Leu Lys Thr Pro Pro Leu Trp Cys Gln Leu Gly Gln His Ser Phe
65 70 75 80

Met His Ser Phe Leu Val Ile Pro Thr Cys Pro Leu Pro Leu Leu Gly
85 90 95

Arg Asn Ile Leu Thr Lys Leu Ser Ala Ser Leu Thr Ile Pro Gly Val
100 105 110

Gln Leu His Leu Ile Ala Ala Leu Leu Pro Asn Pro Lys Pro Pro Leu
115 120 125

Cys Pro Leu Thr Ser Pro Gln Tyr His Pro Leu Pro Gln Asp Leu Pro
130 135 140

Ser Ala
145

<210> 1350
<211> 296
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (53)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1350
Pro Thr Arg Pro Arg Thr Arg Gly Ala Ile Phe Ala Ala Arg Thr Arg
1 5 10 15

Ser Glu Arg Leu Arg Glu Ser Glu Thr Leu Ser Ala Ser Ile Arg Arg
20 25 30

Ala Asp Pro Ala Gly Ala Ala Ala Ala Met Asp Asp Arg Glu Asp Leu

85 90 95

Met Glu His Ala Val Glu Gln Cys His Glu Ala Leu Phe Phe Asn Met
100 105 110

Gly Gln Cys Cys Cys Ala Gly Ser Arg Thr Phe Val Glu Glu Ser Ile
115 120 125

Tyr Asn Glu Phe Leu Glu Arg Thr Val Glu Lys Ala Lys Gln Arg Lys
130 135 140

Val Gly Asn Pro Phe Glu Leu Asp Thr Gln Gln Gly Pro Gln Val Asp
145 150 155 160

Lys Glu Gln Phe Glu Arg Val Leu Gly Tyr Ile Gln Leu Gly Gln Lys
165 170 175

Glu Gly Ala Lys Leu Leu Cys Gly Gly Glu Arg Phe Gly Glu Arg Gly
180 185 190

Phe Phe Ile Lys Pro Thr Val Phe Gly Gly Val Gln Asp Asp Met Arg
195 200 205

Ile Ala Lys Glu Glu Ile Phe Gly Pro Val Gln Pro Leu Phe Lys Phe
210 215 220

Lys Lys Ile Glu Glu Val Val Glu Arg Ala Asn Asn Thr Arg Tyr Gly
225 230 235 240

Leu Ala Ala Ala Val Phe Thr Arg Asp Leu Asp Lys Ala Met Tyr Phe
245 250 255

Thr Gln Ala Leu Gln Ala Gly Thr Val Trp Val Asn Thr Tyr Asn Ile
260 265 270

Val Thr Cys His Thr Pro Phe Gly Gly Phe Lys Glu Ser Gly Asn Gly
275 280 285

Arg Glu Leu Gly Glu Asp Gly Leu Lys Ala Tyr Thr Glu Val Lys Thr
290 295 300

Val Thr Ile Lys Val Pro Gln Lys Asn Ser
305 310

<210> 1349
<211> 146
<212> PRT
<213> Homo sapiens

660 665 670

Val Met Glu Glu Gly Lys Asp Phe Gln Pro Ser Arg Ser Thr Ala Gln
675 680 685

Gln Glu Leu Asp Gly Lys Pro Ala Ser Pro Thr Pro Val Ile Val Ala
690 695 700

Ser His Thr Ala Asn Lys Glu Glu Lys Ser Leu Leu Glu Leu Glu Val
705 710 715 720

Asp Leu Asp Asn Leu Glu Leu Glu Asp Ile Asp Thr Thr Asp Ile Asn
725 730 735

Leu Asp Glu Asp Ile Leu Asp Asp
740

<210> 1348
<211> 314
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (18)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (87)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1348
Asn Thr Val Val Met Lys Val Ala Glu Gln Thr Pro Leu Ser Ala Leu
1 5 10 15

Tyr Xaa Ala Ser Leu Ile Lys Glu Ala Gly Phe Pro Pro Gly Val Val
20 25 30

Asn Ile Ile Thr Gly Tyr Gly Pro Thr Ala Gly Ala Ala Ile Ala Gln
35 40 45

His Met Asp Val Asp Lys Val Ala Phe Thr Gly Ser Thr Glu Val Gly
50 55 60

His Leu Ile Gln Lys Ala Ala Gly Asp Ser Asn Leu Lys Arg Val Thr
65 70 75 80

Leu Glu Leu Gly Gly Lys Xaa Pro Ser Ile Val Leu Ala Asp Ala Asp

385 390 395 400

Leu Leu Gly Tyr Ile Pro Lys Asp Asn Arg Leu Tyr Leu Gly Asp Lys
405 410 415

Glu Leu Asn Ile Ile Ser Tyr Ser Leu Leu Val Ser Val Leu Glu Tyr
420 425 430

Gln Thr Ala Val Met Arg Arg Asp Phe Ser Met Ala Asp Lys Val Leu
435 440 445

Pro Thr Ile Pro Lys Glu Gln Arg Thr Arg Val Ala His Phe Leu Glu
450 455 460

Lys Gln Gly Phe Lys Gln Gln Ala Leu Thr Val Ser Thr Asp Pro Glu
465 470 475 480

His Arg Phe Glu Leu Ala Leu Gln Leu Gly Glu Leu Lys Ile Ala Tyr
485 490 495

Gln Leu Ala Val Glu Ala Glu Ser Glu Gln Lys Trp Lys Gln Leu Ala
500 505 510

Glu Leu Ala Ile Ser Lys Cys Gln Phe Gly Leu Ala Gln Glu Cys Leu
515 520 525

His His Ala Gln Asp Tyr Gly Gly Leu Leu Leu Leu Ala Thr Ala Ser
530 535 540

Gly Asn Ala Asn Met Val Asn Lys Leu Ala Glu Gly Ala Glu Arg Asp
545 550 555 560

Gly Lys Asn Asn Val Ala Phe Met Ser Tyr Phe Leu Gln Gly Lys Val
565 570 575

Asp Ala Cys Leu Glu Leu Leu Ile Arg Thr Gly Arg Leu Pro Glu Ala
580 585 590

Ala Phe Leu Ala Arg Thr Tyr Leu Pro Ser Gln Val Ser Arg Val Val
595 600 605

Lys Leu Trp Arg Glu Asn Leu Ser Lys Val Asn Gln Lys Ala Ala Glu
610 615 620

Ser Leu Ala Asp Pro Thr Glu Tyr Glu Asn Leu Phe Pro Gly Leu Lys
625 630 635 640

Glu Ala Phe Val Val Glu Glu Trp Val Lys Glu Thr His Ala Asp Leu
645 650 655

Trp Pro Ala Lys Gln Tyr Pro Leu Val Thr Pro Asn Glu Glu Arg Asn

115 120 125

Asp Glu Gly Ser Ile Ile Val Lys Leu Gly Arg Glu Glu Pro Ala Met
130 135 140

Ser Met Asp Ala Asn Gly Lys Ile Ile Trp Ala Lys His Ser Glu Val
145 150 155 160

Gln Gln Ala Asn Leu Lys Ala Met Gly Asp Ala Glu Ile Lys Asp Gly
165 170 175

Glu Arg Leu Pro Leu Ala Val Lys Asp Met Gly Ser Cys Glu Ile Tyr
180 185 190

Pro Gln Thr Ile Gln His Asn Pro Asn Gly Arg Phe Val Val Val Cys
195 200 205

Gly Asp Gly Glu Tyr Ile Ile Tyr Thr Ala Met Ala Leu Arg Asn Lys
210 215 220

Ser Phe Gly Ser Ala Gln Glu Phe Ala Trp Ala His Asp Ser Ser Glu
225 230 235 240

Tyr Ala Ile Arg Glu Ser Asn Ser Ile Val Lys Ile Phe Lys Asn Phe
245 250 255

Lys Glu Lys Lys Ser Phe Lys Pro Asp Phe Gly Ala Glu Ser Ile Tyr
260 265 270

Gly Gly Phe Leu Leu Gly Val Arg Ser Val Asn Gly Leu Ala Phe Tyr
275 280 285

Asp Trp Asp Asn Thr Glu Leu Ile Arg Arg Ile Glu Ile Gln Pro Lys
290 295 300

His Ile Phe Trp Ser Asp Ser Gly Glu Leu Val Cys Ile Ala Thr Glu
305 310 315 320

Glu Ser Phe Phe Ile Leu Lys Tyr Leu Ser Glu Lys Val Leu Ala Ala
325 330 335

Gln Glu Thr His Glu Gly Val Thr Glu Asp Gly Ile Glu Asp Ala Phe
340 345 350

Glu Val Leu Gly Glu Ile Gln Glu Ile Val Lys Thr Gly Leu Trp Val
355 360 365

Gly Asp Cys Phe Ile Tyr Thr Ser Ser Val Asn Arg Leu Asn Tyr Tyr
370 375 380

Val Gly Gly Glu Ile Val Thr Ile Ala His Leu Asp Arg Thr Met Tyr

Ala Ser Ile Leu Ala Arg Asp Cys Ala Ala Ala Ala Ala Ile Val Phe
115 120 125

Leu Val Asp Arg Phe Leu Tyr Gly Xaa Asp Val Ser Gly Lys Leu Leu
130 135 140

Gln Val Ala Lys Gly Leu His Lys Leu Gln Pro Ala Thr Pro Ile Ala
145 150 155 160

Pro Gln Val Val Ile Arg Gln Ala Arg Ile Ser Val Asn Ser Gly Lys
165 170 175

Leu Leu Lys Ala Glu Tyr Ile Leu Ser Ser Leu Ile Ser Asn Asn Gly
180 185 190

Ala Thr Gly Thr Trp Leu Tyr Arg Asn Glu Ser Asp Lys Val Leu Val
195 200 205

Gln Ser Val Cys Ile Gln Ile Arg Gly Gln Ile Leu Gln Lys Leu
210 215 220

<210> 1347
<211> 744
<212> PRT
<213> Homo sapiens

<400> 1347
Leu Asp Arg Thr Ile Lys Val Trp Gln Leu Gly Ser Ser Ser Pro Asn
1 5 10 15

Phe Thr Leu Glu Gly His Glu Lys Gly Val Asn Cys Ile Asp Tyr Tyr
20 25 30

Ser Gly Gly Asp Lys Pro Tyr Leu Ile Ser Gly Ala Asp Asp Arg Leu
35 40 45

Val Lys Ile Trp Asp Tyr Gln Asn Lys Thr Cys Val Gln Thr Leu Glu
50 55 60

Gly His Ala Gln Asn Val Ser Cys Ala Ser Phe His Pro Glu Leu Pro
65 70 75 80

Ile Ile Ile Thr Gly Ser Glu Asp Gly Thr Val Arg Ile Trp His Ser
85 90 95

Ser Thr Tyr Arg Leu Glu Ser Thr Leu Asn Tyr Gly Met Glu Arg Val
100 105 110

Trp Cys Val Ala Ser Leu Arg Gly Ser Asn Asn Val Ala Leu Gly Tyr

Ser Leu Trp Trp Trp Asp Phe Phe Arg Val Phe Leu Phe Leu Lys Ser
145 150 155 160

Pro Pro Val Leu Leu Trp Ala Val Pro Asn Tyr Arg Gln Leu Arg Lys
165 170 175

Tyr Ile Leu Leu Arg Xaa Thr Tyr Leu Gly Ser Leu Leu Leu Pro Gln
180 185 190

Thr Cys Leu Ala Gly Asp Ser Cys Arg Ser
195 200

<210> 1346
<211> 223
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (35)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (137)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1346
Val Ile Asp His Pro Arg Pro Arg Asp Thr Gln Phe Ile Val Ile Ile
1 5 10 15

Met Asn Asn Gln Lys Val Val Ala Val Leu Leu Gln Glu Cys Lys Gln
20 25 30

Val Leu Xaa Gln Leu Leu Leu Glu Ala Pro Asp Val Ser Glu Glu Asp
35 40 45

Lys Ser Glu Asp Gln Arg Cys Arg Ala Leu Leu Pro Ser Glu Leu Arg
50 55 60

Thr Leu Ile Gln Glu Ala Lys Glu Met Lys Trp Pro Phe Val Pro Glu
65 70 75 80

Lys Trp Gln Tyr Lys Gln Ala Val Gly Pro Glu Asp Lys Thr Asn Leu
85 90 95

Lys Asp Val Ile Gly Ala Gly Leu Gln Gln Leu Leu Ala Ser Leu Arg
100 105 110

Ala Glu Ala Ala Ala Lys Ile Arg Lys Glu Asn Pro Val Val Val Ala
290 295 300

Glu Lys Ile Gln Arg Ile
305 310

<210> 1345
<211> 202
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (9)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (182)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1345
Arg Arg Ala Arg Ala His Pro Gly Xaa Arg Leu Trp Gly Arg Arg Arg
1 5 10 15

Gly Pro Glu Pro Ser Thr Val Gly Arg Lys Ala Thr Lys Lys Thr Asp
20 25 30

Lys Pro Arg Gln Glu Asp Lys Asp Asp Leu Asp Val Thr Glu Leu Thr
35 40 45

Asn Glu Asp Leu Leu Asp Gln Leu Val Lys Tyr Gly Val Asn Pro Gly
50 55 60

Pro Ile Val Gly Thr Thr Arg Lys Leu Tyr Glu Lys Lys Leu Leu Lys
65 70 75 80

Leu Arg Glu Gln Gly Thr Glu Ser Arg Ser Ser Thr Pro Leu Pro Thr
85 90 95

Ile Ser Ser Ser Ala Glu Asn Thr Arg Gln Asn Gly Ser Asn Asp Ser
100 105 110

Asp Arg Tyr Ser Asp Asn Glu Glu Gly Lys Lys Lys Glu His Lys Lys
115 120 125

Val Lys Ser Thr Arg Asp Ile Val Pro Phe Ser Glu Leu Gly Asn Tyr
130 135 140

Pro Ser Ser His Phe Pro Ser Ser Gly Val Val Pro Ala Thr Leu Asp
20 25 30

Ala Ala Ala Gly Thr Lys Glu Asp Pro Ala Ala Ala Arg Arg His Leu
35 40 45

Arg Leu Leu Leu Arg Pro Ala Pro Gly Pro Arg Arg Arg His Gln Gly
50 55 60

Ala Arg Leu Ser Leu Pro Gly Gly Leu Gly Pro Ala Ser Ser Cys Arg
65 70 75 80

Leu Arg Ala Arg Thr Arg Leu Ser His Leu Gly Pro Cys Arg Gln Lys
85 90 95

Asn Met Ala Gln Glu Thr Asn Gln Thr Pro Gly Pro Met Leu Cys Ser
100 105 110

Thr Gly Cys Gly Phe Tyr Gly Asn Pro Arg Thr Asn Gly Met Cys Ser
115 120 125

Val Cys Tyr Lys Glu His Leu Gln Arg Gln Gln Asn Ser Gly Arg Met
130 135 140

Ser Pro Met Gly Thr Ala Ser Gly Ser Asn Ser Pro Thr Ser Asp Ser
145 150 155 160

Ala Ser Val Gln Arg Ala Asp Thr Ser Leu Asn Asn Cys Glu Gly Ala
165 170 175

Ala Gly Ser Thr Ser Glu Lys Ser Arg Asn Val Pro Val Ala Ala Leu
180 185 190

Pro Val Thr Gln Gln Met Thr Glu Met Ser Ile Ser Arg Glu Asp Lys
195 200 205

Ile Thr Thr Pro Lys Thr Glu Val Ser Glu Pro Val Val Thr Gln Pro
210 215 220

Ser Pro Ser Val Ser Gln Pro Ser Thr Ser Gln Ser Glu Glu Lys Ala
225 230 235 240

Pro Glu Leu Pro Lys Pro Lys Lys Asn Arg Cys Phe Met Cys Arg Lys
245 250 255

Lys Val Gly Leu Thr Gly Phe Asp Cys Arg Cys Gly Asn Leu Phe Cys
260 265 270

Gly Leu His Arg Tyr Ser Asp Lys His Asn Cys Pro Tyr Asp Tyr Lys
275 280 285

Thr His Pro Leu Thr Leu Asp Glu Ile Leu Asp Glu Thr Gln His Leu
145 150 155 160

Asp Ile Gly Leu Lys Gln Lys Gln Trp Leu Met Thr Glu Ala Leu Val
165 170 175

Asn Asn Pro Lys Ile Glu Val Ile Asp Gly Lys Tyr Ala Phe Lys Pro
180 185 190

Lys Tyr Asn Val Arg Asp Lys Lys Ala Leu Leu Arg Leu Leu Asp Gln
195 200 205

His Asp Gln Arg Gly Leu Gly Gly Ile Leu Leu Glu Asp Ile Glu Glu
210 215 220

Ala Leu Pro Asn Ser Gln Lys Ala Val Lys Ala Leu Gly Asp Gln Ile
225 230 235 240

Leu Phe Val Asn Arg Pro Asp Lys Lys Lys Ile Leu Phe Phe Asn Asp
245 250 255

Lys Ser Cys Gln Phe Ser Val Asp Glu Glu Phe Gln Lys Leu Trp Arg
260 265 270

Ser Val Thr Val Asp Ser Met Asp Glu Glu Lys Ile Glu Glu Tyr Leu
275 280 285

Lys Arg Gln Gly Ile Ser Ser Met Gln Glu Ser Gly Pro Lys Lys Val
290 295 300

Ala Pro Ile Gln Arg Arg Lys Lys Pro Ala Ser Gln Lys Lys Arg Arg
305 310 315 320

Phe Lys Thr His Asn Glu His Leu Ala Gly Val Leu Lys Asp Tyr Ser
325 330 335

Asp Ile Thr Ser Ser Lys
340

<210> 1344
<211> 310
<212> PRT
<213> Homo sapiens

<400> 1344
Cys Gly Arg Arg Ser Ser Leu His Leu Leu Leu Gly Pro Pro Ser Leu
1 5 10 15

Glu Arg Cys Leu Gly Xaa Leu Arg Gln Ala Ser Gln Gly Trp Leu Val
100 105 110

Ser Xaa Arg
115

<210> 1343
<211> 342
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (1)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (24)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1343
Xaa Leu His Arg Gly Asp Asp Arg Ser Arg Thr Ser Gly Ser Pro Gly
1 5 10 15

Leu Gln Glu Phe Gly Arg Gly Xaa Ala Gly Val Gly Gly Arg Pro Arg
20 25 30

Arg Arg Arg Arg Lys Gly Ala Ala Ser Arg Ala Arg Leu Pro Phe Ser
35 40 45

Leu Ser Ile Met Asp Pro Ser Leu Leu Arg Glu Arg Glu Leu Phe Lys
50 55 60

Lys Arg Ala Leu Ser Thr Pro Val Val Glu Lys Arg Ser Ala Ser Ser
65 70 75 80

Glu Ser Ser Ser Ser Ser Ser Lys Lys Lys Lys Thr Lys Val Glu His
85 90 95

Gly Gly Ser Ser Gly Ser Lys Gln Asn Ser Asp His Ser Asn Gly Ser
100 105 110

Phe Asn Leu Lys Ala Leu Ser Gly Ser Ser Gly Tyr Lys Phe Gly Val
115 120 125

Leu Ala Lys Ile Val Asn Tyr Met Lys Thr Arg His Gln Arg Gly Asp
130 135 140

<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (5)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (6)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (25)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (49)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (102)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (114)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1342
```
Phe Pro Asn Pro Xaa Xaa Arg Gly Val Trp Ala Arg Gly Pro Pro Gly
  1               5                  10                  15

Leu Ser Phe Lys Gly Lys Thr Leu Xaa Gly Phe Gly Glu Ile Pro Pro
             20                  25                  30

Pro Pro Gly Gly Ala Leu Cys Pro Lys Gly Lys Asn Phe Pro Gly Ala
         35                  40                  45

Xaa Pro Glu Arg Pro Gln Lys Arg Phe Pro Pro Gly Lys Glu Ser Pro
     50                  55                  60

Val Gly Ile Val Lys Thr Lys Arg Gly Ile Leu Lys Ala Gly Asn Ser
 65                  70                  75                  80

Gly Cys Pro Pro Thr Ser Pro Asn Ile Pro Gly Gly Thr Trp Gly Leu
                 85                  90                  95
```

<210> 1341
<211> 169
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (126)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1341
Gly Ser Thr Pro Arg Gly Lys Met Arg Ala Pro Ile Pro Glu Pro Lys
1 5 10 15

Pro Gly Asp Leu Ile Glu Ile Phe Arg Pro Phe Tyr Arg His Trp Ala
20 25 30

Ile Tyr Val Gly Asp Gly Tyr Val Val His Leu Ala Pro Pro Ser Glu
35 40 45

Val Ala Gly Ala Gly Ala Ala Ser Val Met Ser Ala Leu Thr Asp Lys
50 55 60

Ala Ile Val Lys Lys Glu Leu Leu Tyr Asp Val Ala Gly Ser Asp Lys
65 70 75 80

Tyr Gln Val Asn Asn Lys His Asp Asp Lys Tyr Ser Pro Leu Pro Cys
85 90 95

Ser Lys Ile Ile Gln Arg Ala Glu Glu Leu Val Gly Gln Glu Val Leu
100 105 110

Tyr Lys Leu Thr Ser Glu Asn Cys Glu His Phe Val Asn Xaa Leu Arg
115 120 125

Tyr Gly Val Ala Arg Ser Asp Gln Val Arg Asp Val Ile Ile Ala Ala
130 135 140

Ser Val Ala Gly Met Gly Leu Ala Ala Met Ser Leu Ile Gly Val Met
145 150 155 160

Phe Ser Arg Asn Lys Arg Gln Lys Gln
165

<210> 1342
<211> 115

1 5 10 15

Tyr Ala His Arg Ile Ile Trp Cys Asn Gly Ala Tyr Xaa Pro Lys Phe
20 25 30

Gln Asn Phe Lys Phe Met Tyr Leu Phe Leu His
35 40

<210> 1340
<211> 104
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (1)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (31)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (100)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1340
Xaa Pro Ala Pro Gln Gln Pro Gly Pro Gln Arg Cys Glu Glu Pro Leu
1 5 10 15

His Arg Asp Leu Pro Gly Gly Ala Asp Gln Ser Gly Arg Arg Xaa Ser
20 25 30

Leu Arg Gln Thr Arg Thr Trp Lys Phe Ile Asp Pro Phe Cys Arg Ile
35 40 45

Ala Ala Arg Thr Lys Asp Ser Leu Val Leu Asn Asn Ile Thr Arg Gly
50 55 60

Ile Phe Glu Thr Ile Val Glu Gln Ala Pro Leu Ala Ile Glu Asp Leu
65 70 75 80

Leu Asn Glu Leu Asp Thr Gln Asp Glu Glu Val Ala Ser Asp Ser Asp
85 90 95

Glu Ser Ser Xaa Gly Gly Glu Arg
100

<400> 1338
Leu Thr Leu Leu Phe Pro Glu Pro Pro Ala Gln Ala Gly Met Phe Val
1 5 10 15

Leu Val Glu Met Val Asp Thr Val Arg Ile Pro Pro Trp Gln Phe Glu
20 25 30

Arg Lys Leu Asn Asp Ser Ile Ala Glu Glu Leu Asn Lys Lys Leu Ala
35 40 45

Asn Lys Val Val Tyr Asn Val Gly Leu Cys Ile Cys Leu Phe Asp Ile
50 55 60

Thr Lys Leu Glu Asp Ala Tyr Val Phe Pro Gly Asp Gly Ala Ser His
65 70 75 80

Thr Lys Val His Phe Arg Cys Val Val Phe His Pro Phe Leu Asp Glu
85 90 95

Ile Leu Ile Gly Lys Ile Lys Gly Cys Ser Pro Glu Gly Val His Val
100 105 110

Ser Leu Gly Phe Phe Asp Asp Ile Leu Ile Pro Pro Glu Ser Leu Gln
115 120 125

Gln Pro Ala Lys Phe Asp Glu Ala Glu Gln Val Trp Val Trp Glu Tyr
130 135 140

Glu Thr Glu Glu Gly Ala His Asp Leu Tyr Met Asp Thr Gly Glu Glu
145 150 155 160

Ile Arg Phe Arg Val Val Asp Glu Ser Phe Val Asp Thr Ser Pro Thr
165 170 175

Xaa Pro Ser Ser Ala Asp Ala Thr Xaa Phe Xaa
180 185

<210> 1339
<211> 43
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (29)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1339
Gly Gln Thr Phe Thr Ser Gly Asn Leu Leu Ser His Val Phe His Phe

1   5   10   15

Gly Leu Cys Lys Gln Trp Leu Gln Arg Ala Trp Gln Glu Arg Arg Leu
            20   25   30

Leu Leu Arg Glu Pro Arg Tyr Thr Leu Leu Val Ala Ala Cys Leu Cys
        35   40   45

Leu Ala Glu Val Gly Ile Thr Phe Trp Val Ile His Arg Val Ala Tyr
    50   55   60

Thr Glu Ile Asp Trp Lys Ala Tyr Met Ala Xaa Val Glu Gly Val Ile
65   70   75   80

Asn Gly Thr Tyr Asp Tyr Thr Gln Leu Gln Gly Asp Thr Gly Pro Leu
                85   90   95

Val Tyr Pro Ala Gly Phe Val Tyr Ile Phe Met Gly Leu Tyr Tyr Ala
            100   105   110

Thr Ser Arg Gly Thr Asp Ile Arg Met Ala Gln Asn Ile Phe Ala Val
        115   120   125

Leu Tyr Leu Ala Thr Leu Leu Leu Val Phe Leu Ile Tyr His Gln Thr
    130   135   140

Cys Lys
145

<210> 1338
<211> 187
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (177)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (185)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (187)
<223> Xaa equals any of the naturally occurring L-amino acids

35 40 45

Leu Xaa Lys Leu Leu Gly Lys Leu Pro Glu Leu Arg Thr Leu Cys Thr
50 55 60

Gln Gly Leu Gln Arg Ile Phe Tyr Leu Lys Leu Glu Asp Leu Val Pro
65 70 75 80

Pro Pro Ala Ile Ile Asp Lys Leu Phe Leu Asp Thr Leu Pro Phe
85 90 95

<210> 1336
<211> 84
<212> PRT
<213> Homo sapiens

<400> 1336
Asp Arg Arg Arg Lys Trp Arg Gly Gly Gly Ile Leu Glu Leu Leu Arg
1 5 10 15

Met Gly Gly Val Pro Ser Ala Glu Ala Lys Gly Gly Glu Gln Pro Ser
20 25 30

Trp Ser Trp Arg Asp Gly Glu Gly Phe Gln Leu Ile Cys Arg Ser Cys
35 40 45

Pro Cys Gly Pro Gln Pro Ser Gly Leu Ala Val Asp Val Pro Leu Pro
50 55 60

Thr His Leu Pro Ala Cys Pro Pro Ala Arg Ile Ala Leu Ala Asp Leu
65 70 75 80

Pro Glu Arg Thr

<210> 1337
<211> 146
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (75)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1337
Ala Gly Leu Arg Lys Arg Gly Arg Ser Gly Ser Ala Ala Gln Ala Glu

```
        115                 120                 125

Asn Trp Pro Leu Gly Ala Pro Leu Pro Leu Ser Pro Ser Val Pro Ala
    130                 135                 140

Glu Thr Leu Ser Ser Gly Ile Arg Ile Pro Val Gly Lys Ala Pro Pro
145                 150                 155                 160

Gly Gly Trp Arg Trp Ser Gly Cys Arg Trp Pro Thr Gly Ala Tyr
                165                 170                 175



<210> 1334
<211> 63
<212> PRT
<213> Homo sapiens

<400> 1334
Ser Ser Phe Leu Leu Val Gln Phe Asp Gly Val Asn Gly Glu Phe Gln
 1               5                  10                  15

Ala Gln Leu Leu Asn Phe Val Ala Ser Ser Ser Ser Pro Ser His Leu
            20                  25                  30

Gln Ser Ser Ala Pro Leu Cys Leu Gly Asp Arg Gln Glu Val Gly Glu
        35                  40                  45

Glu Leu Asn Leu Phe Ile Phe Pro Gly Arg Asp Ile Phe Lys Ala
    50                  55                  60



<210> 1335
<211> 95
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (50)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1335
Leu Leu Leu Phe Leu Ile Met Phe Ser Ala Glu Arg His Gly Leu Lys
 1               5                  10                  15

Glu Pro Lys Arg Val Glu Glu Leu Gln Asn Lys Ile Val Asn Cys Leu
            20                  25                  30

Lys Asp His Val Thr Phe Asn Asn Gly Gly Leu Asn Arg Pro Asn Tyr
```

<222> (7)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1332
Gly His Gly Glu Gln Arg Xaa His Gly Arg Glu Val Asn Ala Leu Lys
1 5 10 15

Ser Lys Leu Arg Arg Gly Asn Glu Thr Ser Phe Val Pro Ser Arg Arg
20 25 30

Ser Gly Gly Arg Arg Val Ile Glu Asn Ala Asp Gly Ser Glu Glu Glu
35 40 45

Thr Asp Thr Arg Asp Ala Asp Phe Asn Gly Thr Lys Ala Ser Glu
50 55 60

<210> 1333
<211> 175
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (59)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1333
Ala Ile Ser Val Leu Ala Ser Pro Leu Thr Ser Leu Leu Ser Cys Gly
1 5 10 15

Asp Arg Met Asp Arg Phe Leu Val Lys Gly Ala Gln Gly Gly Leu Leu
20 25 30

Arg Lys Gln Glu Glu Gln Glu Pro Thr Gly Glu Glu Pro Ala Val Leu
35 40 45

Gly Gly Asp Lys Glu Ser Thr Arg Lys Arg Xaa Arg Arg Glu Ala Pro
50 55 60

Gly Asn Gly Gly His Ser Ala Gly Pro Ser Trp Arg His Ile Arg Ala
65 70 75 80

Glu Gly Leu Asp Cys Ser Tyr Thr Val Leu Phe Gly Lys Ala Glu Ala
85 90 95

Asp Glu Ile Phe Gln Glu Leu Glu Lys Glu Val Glu Tyr Phe Thr Gly
100 105 110

Ile Lys Met Ala Val Thr Thr Ser Gly Ser Thr Glu Met Met Lys Glu

Pro Arg Val Arg Ala Glu Asn Arg Ser Trp Lys Cys Leu Leu Ala Ala
20 25 30

Arg Gly Glu Glu Arg Gly Ala Ser Ile Met Ala Glu Gln Asp Val Glu
35 40 45

Asn Asp Leu Leu Asp Tyr Asp Glu Glu Glu Glu Pro Gln Ala Pro Gln
50 55 60

Glu Ser Thr Pro Ala Pro Pro Lys Lys Asp Ile Lys Gly Ser Tyr Val
65 70 75 80

Ser Ile His Ser Ser Gly Phe Arg Asp Phe Leu Leu Lys Pro Glu Leu
85 90 95

Leu Arg Ala Ile Val Asp Cys Gly Phe Glu His Pro Ser Glu Val Gln
100 105 110

His Glu Cys Ile Pro Gln Ala Ile Leu Gly Met Asp Val Leu Cys Gln
115 120 125

Ala Lys Ser Gly Met Gly Lys Thr Ala Val Phe Val Leu Ala Thr Leu
130 135 140

Gln Gln Ile Glu Pro Val Asn Gly Gln Val Thr Val Leu Val Met Cys
145 150 155 160

His Thr Arg Glu Leu Ala Phe Xaa Ile Ser Lys Glu Tyr Glu Arg Phe
165 170 175

Ser Lys Tyr Met Pro Ser Val Lys Val Xaa Xaa Ser Ala Arg Leu Asp
180 185 190

Gln Ala Pro Leu Gly Phe Xaa Ser Phe Xaa Ser Leu Gly Ser Gly Pro
195 200 205

Xaa Ser Ile Tyr Gln Ala Trp Gln Gly Gln Leu Pro Leu Lys Val Cys
210 215 220

Ser Gly Phe Cys Ser Leu Lys Ala
225 230

<210> 1332
<211> 63
<212> PRT
<213> Homo sapiens

<220>
<221> SITE

Pro Glu Glu Asp Glu Arg Lys Lys Arg Arg Arg Glu Arg Asn Lys Ile
100 105 110

Ala Ala Ala Lys Cys Arg Asn Lys Lys Lys Glu Lys Thr Asp Ala Cys
115 120 125

Arg Lys
130

<210> 1331
<211> 232
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (168)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (186)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (187)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (199)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (202)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (209)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1331
Gly Lys Leu Val Arg Leu Gln Val Pro Val Arg Asn Ser Arg Val Asp
1 5 10 15

165 170 175

Ala Asn Thr Ala Ser His Pro Leu Trp Leu Leu Ala Met Pro Gln Val
180 185 190

Pro Lys Lys Met Glu Asp Pro Cys Ala Arg Ser Gln Pro Gly Xaa Pro
195 200 205

Glu Gly Gln Cys Pro Ser Glu Asp Arg Ser Glu Arg Ile Lys Phe Pro
210 215 220

Val Gly Pro Leu Ser Pro Leu Gly Cys Val Phe Gln Leu Leu Thr Phe
225 230 235 240

Gln Arg Gly Pro Ser Arg Ser Pro Ala Gly Phe Pro Gln Gly Leu Pro
245 250 255

Leu Arg Trp Glu Trp Ile Ser Thr Arg Ala Phe Asp Phe Gly Gln Ile
260 265 270

Gly Pro His Ser His Arg Phe Ser Cys Gln Gly Pro Trp Thr Gly Gly
275 280 285

Trp Cys Phe Leu
290

<210> 1330
<211> 130
<212> PRT
<213> Homo sapiens

<400> 1330
Arg Arg Arg Trp Leu Ala Arg Leu Gly Glu Gly Val Ser Lys Met Met
1 5 10 15

Leu Gln His Pro Gly Gln Val Ser Ala Ser Glu Val Ser Ala Ser Ala
20 25 30

Ile Val Pro Cys Leu Ser Pro Pro Gly Ser Leu Val Phe Glu Asp Phe
35 40 45

Ala Asn Leu Thr Pro Phe Val Lys Glu Glu Leu Arg Phe Ala Ile Gln
50 55 60

Asn Lys His Leu Cys His Arg Met Ser Ser Ala Leu Glu Ser Val Thr
65 70 75 80

Val Ser Asp Arg Pro Leu Gly Val Ser Ile Thr Lys Ala Glu Val Ala
85 90 95

<211> 292
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (20)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (145)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (207)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1329
```
Leu Gly Leu Ile Cys Gln Ala Leu Trp Phe Pro Ser Tyr Phe Arg Gly
  1               5                  10                  15

Cys Tyr Gly Xaa Leu Gly Gly Arg Pro His Met Gly Arg Gly Trp Val
             20                  25                  30

Val Asp Gly Val Ser Val Val Ser Cys Gly Arg Val Ile Leu Leu Leu
         35                  40                  45

Phe Leu Phe Thr Phe Phe Pro Leu His Lys Pro Lys Ser Phe His Leu
     50                  55                  60

Val Ser Thr Val Trp Thr Val Leu Glu Leu Gly Ala Cys Gln Lys Asn
 65                  70                  75                  80

Leu Gly Leu Gly Lys Pro Gln Val Ala Asp Met Val Lys Gln Arg Asn
                 85                  90                  95

Cys Ser Ser Gly Ser Cys Thr Thr Ser Glu Gly Gln Lys Pro Ser Pro
            100                 105                 110

Gly Arg Arg Arg Val Phe Arg Ser Gln Thr Phe Gly Glu Lys Ala Ala
        115                 120                 125

Pro Ser Leu Leu Gly Asp Arg His Ser Ala Cys Val Pro Gln Leu Gly
    130                 135                 140

Xaa Ala Gly Ser Leu Thr Tyr Glu Ala Trp Arg Ser Ser His Cys Pro
145                 150                 155                 160

His Tyr Gly Gln Arg Gly Asp Pro Ala Gly Pro Leu Gly Gln Thr Gly
```

35 40 45

Asn Pro Lys Ala Val Glu Thr Phe Gln Lys Leu Gln Lys Ala Lys Glu
50 55 60

Ile Leu Thr Asn Glu Glu Ser Arg Ala Arg Tyr Asp His Trp Arg Arg
65 70 75 80

Ser Gln Met Ser Met Pro Phe Gln Gln Trp Glu Ala Leu Asn Asp Ser
85 90 95

Val Lys Thr Val Gly Phe Ser Leu Gly Ala Thr
100 105

<210> 1328
<211> 110
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (1)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1328
Xaa Val Ser Leu Ala Ala Leu Lys Lys Ala Leu Ala Ala Ala Gly Tyr
1 5 10 15

Asp Val Glu Lys Asn Asn Ser Arg Ile Lys Leu Gly Leu Lys Ser Leu
20 25 30

Val Ser Lys Gly Thr Leu Val Gln Thr Lys Gly Thr Gly Ala Ser Gly
35 40 45

Ser Phe Lys Leu Asn Lys Lys Ala Ala Ser Gly Glu Ala Lys Pro Lys
50 55 60

Val Lys Lys Ala Gly Gly Thr Lys Pro Lys Lys Pro Val Gly Ala Ala
65 70 75 80

Lys Lys Pro Lys Lys Ala Ala Gly Gly Ala Thr Pro Lys Lys Ser Ala
85 90 95

Lys Lys Thr Pro Lys Lys Ala Lys Lys Pro Pro Arg Pro Leu
100 105 110

<210> 1329

Val Cys Gly Ala Gly Pro Ile Gly Met Val Thr Leu Leu Val Ala Lys
180 185 190

Ala Met Gly Ala Ala Gln Val Val Val Thr Asp Leu Ser Ala Thr Arg
195 200 205

Leu Ser Lys Ala Lys Glu Ile Gly Ala Asp Leu Val Leu Gln Ile Ser
210 215 220

Lys Glu Ser Pro Gln Glu Ile Ala Arg Lys Val Glu Gly Gln Leu Gly
225 230 235 240

Cys Lys Pro Glu Val Thr Ile Glu Cys Thr Gly Ala Glu Ala Ser Ile
245 250 255

Gln Ala Gly Ile Tyr Ala Thr Arg Ser Gly Gly Thr Leu Val Leu Val
260 265 270

Gly Leu Gly Ser Glu Met Thr Thr Val Pro Leu Leu His Ala Ala Ile
275 280 285

Arg Glu Val Asp Ile Lys Gly Val Phe Arg Tyr Cys Asn Thr Trp Pro
290 295 300

Val Ala Ile Ser Met Leu Ala Ser Lys Ser Val Asn Val Lys Pro Leu
305 310 315 320

Val Thr His Arg Phe Pro Leu Glu Lys Ala Leu Glu Ala Phe Glu Thr
325 330 335

Phe Lys Lys Gly Leu Gly Leu Lys Ile Met Leu Lys Cys Asp Pro Ser
340 345 350

Asp Gln Asn Pro
355

<210> 1327
<211> 107
<212> PRT
<213> Homo sapiens

<400> 1327
Met Asp Ala Ile Leu Asn Tyr Arg Ser Glu Asp Thr Glu Asp Tyr Tyr
1 5 10 15

Thr Leu Leu Gly Cys Asp Glu Leu Ser Ser Val Glu Gln Ile Leu Ala
20 25 30

Glu Phe Lys Val Arg Ala Leu Glu Cys His Pro Asp Lys His Pro Glu

Leu Thr Lys Lys Tyr Leu Lys Lys Asn Asn Leu Arg Asp Trp Leu Arg
100 105 110

Val Val Ala Ser Asp Lys Glu Thr Tyr Glu Leu Arg Tyr Phe Gln Ile
115 120 125

Ser Gln Asp Glu Asp Glu Ser Glu Ser Glu Asp
130 135

<210> 1326
<211> 356
<212> PRT
<213> Homo sapiens

<400> 1326
Ile Pro Thr Arg Pro Arg Thr Arg Gly Ser Leu Gly Ser Ala Val Lys
1 5 10 15

Leu Arg Thr Phe Ala Glu Asn Tyr Pro Ile Pro Glu Pro Gly Pro Asn
20 25 30

Glu Val Leu Leu Arg Met His Ser Val Gly Ile Cys Gly Ser Asp Val
35 40 45

His Tyr Trp Glu Tyr Gly Arg Ile Gly Asn Phe Ile Val Lys Lys Pro
50 55 60

Met Val Leu Gly His Glu Ala Ser Gly Thr Val Glu Lys Val Gly Ser
65 70 75 80

Ser Val Lys His Leu Lys Pro Gly Asp Arg Val Ala Ile Glu Pro Gly
85 90 95

Ala Pro Arg Glu Asn Asp Glu Phe Cys Lys Met Gly Arg Tyr Asn Leu
100 105 110

Ser Pro Ser Ile Phe Phe Cys Ala Thr Pro Pro Asp Asp Gly Asn Leu
115 120 125

Cys Arg Phe Tyr Lys His Asn Ala Ala Phe Cys Tyr Lys Leu Pro Asp
130 135 140

Asn Val Thr Phe Glu Glu Gly Ala Leu Ile Glu Pro Leu Ser Val Gly
145 150 155 160

Ile His Ala Cys Arg Arg Gly Gly Val Thr Leu Gly His Lys Val Leu
165 170 175

```
        115                 120                 125

Ile His Leu Thr Ala Tyr Asp Met Thr Leu Ala Glu Ser Tyr Ala Gln
    130                 135                 140

Tyr Val His Asn Leu Cys Asn Ser Leu Ser Ile Lys Val Glu Glu Ser
145                 150                 155                 160

Tyr Ala Met Pro Thr Lys Thr Ile Glu Val Leu Gln Leu Gln Asp Gln
                165                 170                 175

Gly Ser Lys Met Leu Leu Asp Ser Val Leu Thr Thr His Glu Arg Val
            180                 185                 190

Val Gln Ile Ser Gly Leu Ser Ala Thr Phe Ala Glu Ile Phe Leu Glu
        195                 200                 205

Ile Ile Gln Ser Ser Leu Pro Glu Gly Val Arg Leu Ser Val Lys Glu
    210                 215                 220

His Thr Glu Glu Asp Phe Lys Gly Arg Phe Lys Ala Arg Pro Glu Leu
225                 230                 235                 240

Glu Glu Leu Leu Ala Lys Leu Lys
                245


<210> 1325
<211> 139
<212> PRT
<213> Homo sapiens

<400> 1325
Pro Gly Ser Thr His Ala Ser Ala His Ala Ser Ala Arg Pro Thr Arg
  1               5                  10                  15

Lys Met Ala Pro Gln Lys Asp Arg Lys Pro Lys Arg Ser Thr Trp Arg
             20                  25                  30

Phe Asn Leu Asp Leu Thr His Pro Val Glu Asp Gly Ile Phe Asp Ser
        35                  40                  45

Gly Asn Phe Glu Gln Phe Leu Arg Glu Lys Val Lys Val Asn Gly Lys
    50                  55                  60

Thr Gly Asn Leu Gly Asn Val Val His Ile Glu Arg Phe Lys Asn Lys
65                  70                  75                  80

Ile Thr Val Val Ser Glu Lys Gln Phe Ser Lys Arg Tyr Leu Lys Tyr
                85                  90                  95
```

Asn Gln Ser Asn Leu Ala Val His Arg Arg Val His Ser Gly Glu Lys
180 185 190

Pro Tyr Arg Cys Asp Gln Cys Gly Lys Ala Phe Ser Gln Lys Gly Ser
195 200 205

Leu Ile Val His Ile Arg Val His Thr Gly Leu Lys Pro Tyr Ala Cys
210 215 220

Thr Gln Cys Arg Lys Ser Phe His Thr Arg Gly Asn Cys Ile Leu His
225 230 235 240

Gly Lys Ile His Thr Gly Glu Thr Pro Tyr Leu Cys Gly Gln Cys Gly
245 250 255

Lys Ser Phe Thr Gln Arg Gly Ser Leu Ala Val His Gln Arg Ser Cys
260 265 270

Ser Gln Arg Leu Thr Leu
275

<210> 1324
<211> 248
<212> PRT
<213> Homo sapiens

<400> 1324
Gly Thr Ser Trp Ser Arg Pro Phe Arg Gln Cys Phe Gln Thr Pro Trp
1 5 10 15

Glu Arg Gly Cys Arg Val Arg Ser Ser Val Cys Thr Ala Arg Gly Arg
20 25 30

Ala Gln Gln Arg Met Ser Gly Thr Leu Glu Lys Val Leu Cys Leu Arg
35 40 45

Asn Asn Thr Ile Phe Lys Gln Ala Phe Ser Leu Leu Arg Phe Arg Thr
50 55 60

Ser Gly Glu Lys Pro Ile Tyr Ser Val Gly Gly Ile Leu Leu Ser Ile
65 70 75 80

Ser Arg Pro Tyr Lys Thr Lys Pro Thr His Gly Ile Gly Lys Tyr Lys
85 90 95

His Leu Ile Lys Ala Glu Glu Pro Lys Lys Lys Lys Gly Lys Val Glu
100 105 110

Val Arg Ala Ile Asn Leu Gly Thr Asp Tyr Glu Tyr Gly Val Leu Asn

Gln Gln Gly Asn Phe Leu Ser Ser Thr Xaa Gly Lys Gln Arg Ser Phe
245 250 255

Leu Gln Glu Lys Ser Xaa Ala Tyr Xaa Gly Leu Leu Xaa Gly Trp Gly
260 265 270

Asp Phe Pro Phe Pro Thr Phe Phe Pro Phe Phe Phe
275 280

<210> 1323
<211> 278
<212> PRT
<213> Homo sapiens

<400> 1323
Ala Leu Lys Val Leu Cys Phe Phe Phe Pro Ile Leu Thr Gln His Tyr
1 5 10 15

Trp Cys Phe Leu Tyr Asp Phe Pro Leu Ile Leu Ser Asp Val Met Thr
20 25 30

Glu Ala His His Lys Tyr Asp His Ser Glu Ala Thr Gly Ser Ser Ser
35 40 45

Trp Asp Ile Gln Asn Ser Phe Arg Arg Glu Lys Leu Glu Gln Lys Ser
50 55 60

Pro Asp Ser Lys Thr Leu Gln Glu Asp Ser Pro Gly Val Arg Gln Arg
65 70 75 80

Val Tyr Glu Cys Gln Glu Cys Gly Lys Ser Phe Arg Gln Lys Gly Ser
85 90 95

Leu Thr Leu His Glu Arg Ile His Thr Gly Gln Lys Pro Phe Glu Cys
100 105 110

Thr His Cys Gly Lys Ser Phe Arg Ala Lys Gly Asn Leu Val Thr His
115 120 125

Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Gln Cys Lys Glu Cys Gly
130 135 140

Lys Ser Phe Ser Gln Arg Gly Ser Leu Ala Val His Glu Arg Leu His
145 150 155 160

Thr Gly Gln Lys Pro Tyr Glu Cys Ala Ile Cys Gln Arg Ser Phe Arg
165 170 175

<220>
<221> SITE
<222> (269)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1322
Arg Thr Arg Gly Gly Arg Val Gly Ala Tyr Glu His Pro Gly Ser Ser
1 5 10 15

Leu Phe Pro Glu Gly Pro Asn Asp Tyr Val Phe Ser His Leu Pro Leu
20 25 30

His Ser Gln Gln Gln Val Arg Ala Pro Ile Pro Met Val Pro Val Gly
35 40 45

Gly Ile Gln Met Val His Ser Met Pro Pro Ala Leu Ser Ser Leu His
50 55 60

Pro Ser Pro Thr Leu Pro Leu Pro Met Glu Gly Phe Glu Glu Lys Lys
65 70 75 80

Gly Ala Ser Gly Glu Ser Phe Ser Lys Asp Pro Tyr Val Leu Ser Lys
85 90 95

Gln His Glu Lys Arg Gly Pro His Ala Leu Gln Ser Ser Gly Pro Pro
100 105 110

Ser Thr Pro Ser Ser Pro Arg Leu Leu Met Lys Gln Ser Thr Ser Glu
115 120 125

Asp Ser Leu Asn Ala Thr Glu Arg Glu Gln Glu Glu Asn Ile Gln Thr
130 135 140

Cys Thr Lys Ala Ile Ala Ser Leu Arg Ile Ala Thr Glu Glu Ala Ala
145 150 155 160

Leu Leu Gly Pro Asp Gln Pro Ala Arg Val Gln Glu Pro His Gln Asn
165 170 175

Pro Leu Gly Ser Ala His Val Ser Ile Arg His Phe Ser Arg Pro Glu
180 185 190

Pro Gly Gln Pro Cys Thr Ser Ala Thr His Pro Asp Leu His Asp Gly
195 200 205

Glu Lys Asp Asn Phe Gly Thr Ser Gln Thr Pro Leu Ala His Ser Thr
210 215 220

Phe Tyr Ser Lys Ser Cys Val Xaa Asp Lys Gln Leu Xaa Phe Ser Gln
225 230 235 240

<400> 1321

Val Trp Gln Gly Thr Leu Leu Leu Ala Ser Pro Pro Arg Arg Glu Val
1 5 10 15

Asp Met Thr Ser Pro Pro Pro His Gln Gly Trp Glu Gln Arg Gly Cys
20 25 30

Gly Glu Ser Gln Val Pro Leu Ala Leu Ser Arg Val Phe Ser Thr Ser
35 40 45

His Tyr Cys Leu Leu Leu Val Ala Asn Gln Ser Ile Phe Phe Pro Cys
50 55 60

Leu Trp Ala Val Glu Ser Ala Ala Gly Cys Thr Leu His Leu Pro Thr
65 70 75 80

Glu Leu Gly Lys Glu Asp Asn Gln
85

<210> 1322
<211> 284
<212> PRT
<213> Homo sapiens

<220>
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<222> (232)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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Arg Ile Trp Asp Leu Asn Lys His Gly Lys Gln Ile Gln Val Leu Ser
180 185 190

Gly His Leu Gln Trp Val Tyr Cys Cys Ser Ile Ser Pro Asp Cys Ser
195 200 205

Met Leu Cys Ser Ala Ala Gly Glu Lys Ser Val Phe Leu Trp Ser Met
210 215 220

Arg Ser Tyr Thr Leu Ile Arg Lys Leu Glu Gly His Gln Ser Ser Val
225 230 235 240

Val Ser Cys Asp Phe Ser Pro Asp Ser Ala Leu Leu Val Thr Ala Ser
245 250 255

Tyr Asp Thr Asn Val Ile Met Trp Asp Pro Tyr Thr Gly Glu Arg Leu
260 265 270

Arg Ser Leu His His Thr Gln Val Asp Pro Ala Met Asp Asp Ser Asp
275 280 285

Val His Ile Ser Ser Leu Arg Ser Val Cys Phe Ser Pro Glu Gly Leu
290 295 300

Tyr Leu Ala Thr Val Ala Asp Asp Arg Leu Leu Arg Ile Trp Ala Leu
305 310 315 320

Glu Leu Lys Thr Pro Ile Ala Phe Ala Pro Met Thr Asn Gly Leu Cys
325 330 335

Cys Thr Phe Phe Pro His Gly Gly Val Ile Ala Thr Gly Thr Arg Asp
340 345 350

Gly His Val Gln Phe Trp Thr Ala Pro Arg Val Leu Ser Ser Leu Lys
355 360 365

His Leu Cys Arg Lys Ala Leu Arg Ser Phe Leu Thr Thr Tyr Gln Val
370 375 380

Leu Ala Leu Pro Ile Pro Lys Lys Met Lys Glu Phe Leu Thr Tyr Arg
385 390 395 400

Thr Phe

<210> 1321
<211> 88
<212> PRT
<213> Homo sapiens

85 90 95

Val Ile Phe Phe Ile Tyr Ile Met Thr His
100 105

<210> 1320
<211> 402
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (6)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1320
Gly Thr Arg Glu Pro Xaa Leu Leu Ala Glu Leu Lys Pro Gly Arg Pro
1 5 10 15

His Gln Phe Asp Trp Lys Ser Ser Cys Glu Thr Trp Ser Val Ala Phe
20 25 30

Ser Pro Asp Gly Ser Trp Phe Ala Trp Ser Gln Gly His Cys Ile Val
35 40 45

Lys Leu Ile Pro Trp Pro Leu Glu Glu Gln Phe Ile Pro Lys Gly Phe
50 55 60

Glu Ala Lys Ser Arg Ser Ser Lys Asn Glu Thr Lys Gly Arg Gly Ser
65 70 75 80

Pro Lys Glu Lys Thr Leu Asp Cys Gly Gln Ile Val Trp Gly Leu Ala
85 90 95

Phe Ser Pro Trp Pro Ser Pro Pro Ser Arg Lys Leu Trp Ala Arg His
100 105 110

His Pro Gln Val Pro Asp Val Ser Cys Leu Val Leu Ala Thr Gly Leu
115 120 125

Asn Asp Gly Gln Ile Lys Ile Trp Glu Val Gln Thr Gly Leu Leu Leu
130 135 140

Leu Asn Leu Ser Gly His Gln Asp Val Val Arg Asp Leu Ser Phe Thr
145 150 155 160

Pro Ser Gly Ser Leu Ile Leu Val Ser Ala Ser Arg Asp Lys Thr Leu
165 170 175

<221> SITE
<222> (41)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1318
Thr His Leu Phe Val Leu Leu Pro Xaa Asp Thr Phe Ser Thr Ser Cys
1 5 10 15

Pro Ser Thr Val Arg His Ile Gln Ala Pro Arg Ser Trp Ser Pro Asn
20 25 30

Thr Leu Lys Asn His Glu Phe Ile Xaa Met Val Ser Gln Ser Pro Asn
35 40 45

Gln Pro Asn Gln Thr Cys Tyr Leu Val Leu Leu Gly
50 55 60

<210> 1319
<211> 106
<212> PRT
<213> Homo sapiens

<220>
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<222> (57)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (61)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1319
Ala Arg Pro Pro Ala Ala Arg Thr Gly Val Ala Gly Gly Gly Ala Pro
1 5 10 15

Val Arg Lys Pro Gly Ile Arg Gly His Asp Gly Ala Gly Pro Arg Leu
20 25 30

Leu Ala Ala Pro Arg Pro Pro Trp Pro Ser Ala Gly Val Gly Gln Lys
35 40 45

His Ser Thr Leu Arg Lys Gly Thr Xaa Arg Ala Arg Xaa Cys Val Pro
50 55 60

Gly Leu Ser Glu Gln Arg Cys Glu Asp Gln Gln Arg Glu Glu Ile Pro
65 70 75 80

Ser Ser Arg Gly Cys His Cys Leu Pro Pro His Leu Ser Pro Ser Thr

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1               5                   10                  15

Val Thr Thr Ala Ser Ala Gly Gly Glu Asp Glu Ser Ser Arg Ile Glu
            20                  25                  30

Leu Gly Asp Val Thr Pro His Asn Ile Lys Gln Leu Lys Arg Leu Asn
        35                  40                  45

Gln Val Ile Phe Pro Val Ser Tyr Asn Asp Lys Phe Tyr Lys Asp Val
    50                  55                  60

Leu Glu Val Gly Glu Leu Ala Lys Leu Ala Tyr Phe Asn Asp Ile Ala
65                  70                  75                  80

Val Gly Ala Val Cys Cys Arg Val Asp His Ser Gln Asn Gln Lys Arg
                85                  90                  95

Leu Tyr Ile Met Thr Leu Gly Cys Leu Ala Pro Tyr Arg Arg Leu Gly
            100                 105                 110

Ile Gly Thr Lys Met Leu Asn His Val Leu Asn Ile Cys Glu Lys Asp
        115                 120                 125

Gly Thr Phe Asp Asn Ile Tyr Leu His Val Gln Ile Ser Asn Glu Ser
    130                 135                 140

Ala Ile Asp Phe Tyr Arg Lys Phe Gly Phe Glu Ile Ile Glu Thr Lys
145                 150                 155                 160

Lys Asn Tyr Tyr Lys Arg Ile Glu Pro Ala Asp Ala His Val Leu Gln
                165                 170                 175

Lys Asn Leu Lys Val Pro Ser Gly Gln Asn Ala Asp Val Gln Lys Thr
            180                 185                 190

Asp Asn
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<210> 1318
<211> 60
<212> PRT
<213> Homo sapiens

<220>
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<222> (9)
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<221> SITE
<222> (24)
<223> Xaa equals any of the naturally occurring L-amino acids

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<220>
<221> SITE
<222> (44)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<222> (55)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (58)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1316
Ala Lys Ile Ser Gln Glu Lys Xaa Phe His Lys Xaa Met Ser Ser Val
1 5 10 15

Lys Ala Arg Thr Gly His Xaa Xaa Phe Phe Cys Gly Gly Met Ser Ser
20 25 30

Val Lys Xaa Gly Gln Gly Ile Phe Thr Ser Phe Xaa Ile Leu Gln Leu
35 40 45

Leu Gln Ala Ile Trp Ala Xaa Thr Cys Xaa Ser
50 55

<210> 1317
<211> 194
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (5)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1317
Gly Cys Gly Asp Xaa Arg Ala Ala Thr Thr Thr Ala Leu Ile Ser Val

Ser Glu Leu Ser Arg Arg Arg Ile Arg Ser Ile Asn Lys Leu Ile Arg
65 70 75 80

Ile Gly Arg Asn Glu Cys Val Val Val Ile Arg Val Asp Lys Glu Lys
85 90 95

Gly Tyr Ile Asp Leu Ser Lys Arg Arg Val Ser Pro Glu Glu Ala Ile
100 105 110

Lys Cys Glu Asp Lys Phe Thr Lys Ser Lys Thr Val Tyr Ser Ile Leu
115 120 125

Arg His Val Ala Glu Val Leu Glu Tyr Thr Lys Asp Glu Gln Leu Glu
130 135 140

Ser Leu Phe Gln Arg Thr Ala Trp Val Phe Asp Asp Lys Xaa Lys Xaa
145 150 155 160

Pro Gly Tyr Gly Ala Tyr Asp Ala Phe Lys His Ala Ala Xaa Xaa Pro
165 170 175

Ser Asn Phe Gly Lys Val Xaa Ile Gly Met Lys Ile Xaa Arg Glu Arg
180 185 190

Xaa His

<210> 1316
<211> 59
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (8)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<222> (12)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<222> (23)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<211> 194
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (158)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (160)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (174)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (175)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (183)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (189)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (193)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1315
Arg Ser Arg Leu Trp Ala Pro Val Arg Glu Ser His Thr Tyr Leu Arg
1 5 10 15

Met Pro Gly Leu Ser Cys Arg Phe Tyr Gln His Lys Phe Pro Glu Val
20 25 30

Glu Asp Val Val Met Val Asn Val Arg Ser Ile Ala Glu Met Gly Ala
35 40 45

Tyr Val Ser Leu Leu Glu Tyr Asn Asn Ile Glu Gly Met Ile Leu Leu
50 55 60

Leu Gln Lys Leu Leu Phe Gly Lys Val Ala Lys Asp Ser Ser Arg Met
20 25 30

Leu Gln Pro Ser Ser Ser Pro Leu Trp Gly Lys Leu Arg Val Asp Ile
35 40 45

Lys Ala Tyr Leu Gly Ser Ala Ile Gln Leu Val Ser Cys Leu Ser Glu
50 55 60

Thr Thr Val Leu Ala Ala Val Leu Arg His Ile Ser Val Leu Val Pro
65 70 75 80

Cys Phe Leu Thr Phe Pro Lys Gln Cys Arg Met Leu Leu Lys Arg Met
85 90 95

Val Val Val Trp Ser Thr Gly Glu Glu Ser Leu Arg Val Leu Ala Phe
100 105 110

Leu Val Leu Ser Arg Val Cys Arg His Lys Lys Asp Thr Phe Leu Gly
115 120 125

Pro Val Leu Lys Gln Met Tyr Ile Thr Tyr Val Arg Asn Cys Lys Phe
130 135 140

Thr Ser Pro Gly Ala Leu Pro Phe Ile Ser Phe Met Gln Trp Thr Leu
145 150 155 160

Thr Glu Leu Leu Ala Leu Glu Pro Gly Val Ala Tyr Gln His Ala Phe
165 170 175

Leu Tyr Ile Arg Gln Leu Ala Ile His Leu Arg Asn Ala Met Thr Thr
180 185 190

Arg Lys Lys Glu Thr Tyr Gln Ser Val Tyr Asn Trp Gln Tyr Val His
195 200 205

Cys Leu Phe Leu Trp Cys Arg Val Leu Ser Thr Ala Gly Pro Ser Glu
210 215 220

Ala Ser Ser Pro Trp Ser Asn Pro Leu Xaa Pro Ser His His Trp Leu
225 230 235 240

Tyr Gln Ala His Pro Xaa Cys Pro Xaa Leu Thr Arg Cys Glu Cys Xaa
245 250 255

Ala Ser Val Ala
260

<210> 1315

210 215 220

Tyr Glu Asp Gly Asn Val Gln Leu Val Ser His Lys Asp Val Gln Asp
225 230 235 240

Ser Leu Thr Val Ser Asn Glu Ala Gln Thr Ala Lys Glu Phe Ile Lys
245 250 255

Ile Ile Glu Asn Ala Glu Asn Glu Tyr Gln Thr Ala Ile Ser Glu Asn
260 265 270

Tyr Gln Thr Met Ser Asp Thr Thr Phe Lys Ala Leu Arg Arg Gln Leu
275 280 285

Pro Val Thr Arg Thr Lys Ile Asp Trp Asn Lys Ile Leu Ser Tyr Lys
290 295 300

Ile Gly Lys Glu Met Gln Asn Ala
305 310

<210> 1314
<211> 260
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (234)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (246)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (249)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (256)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1314
Ala Phe Asn Ala Leu Val Thr Phe Cys Ile Arg Asp Leu Ile Gly Cys
1 5 10 15

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Cys Ser Arg Leu Gln Asp Gln
225                 230



<210> 1313
<211> 312
<212> PRT
<213> Homo sapiens

<400> 1313
Ala Ala Val Ile Pro Ser Leu Gly Phe Leu Pro Gly Leu Pro Arg Ala
  1               5                  10                  15

Arg Ser Arg Ala Gly Pro Glu Gln Pro Lys Met Ala Asp Phe Asp Asp
             20                  25                  30

Arg Val Ser Asp Glu Glu Lys Val Arg Ile Ala Ala Lys Phe Ile Thr
         35                  40                  45

His Ala Pro Pro Gly Glu Phe Asn Glu Val Phe Asn Asp Val Arg Leu
     50                  55                  60

Leu Leu Asn Asn Asp Asn Leu Leu Arg Glu Gly Ala Ala His Ala Phe
 65                  70                  75                  80

Ala Gln Tyr Asn Met Asp Gln Phe Thr Pro Val Lys Ile Glu Gly Tyr
                 85                  90                  95

Glu Asp Gln Val Leu Ile Thr Glu His Gly Asp Leu Gly Asn Ser Arg
            100                 105                 110

Phe Leu Asp Pro Arg Asn Lys Ile Ser Phe Lys Phe Asp His Leu Arg
        115                 120                 125

Lys Glu Ala Ser Asp Pro Gln Pro Glu Glu Ala Asp Gly Gly Leu Lys
    130                 135                 140

Ser Trp Arg Glu Ser Cys Asp Ser Ala Leu Arg Ala Tyr Val Lys Asp
145                 150                 155                 160

His Tyr Ser Asn Gly Phe Cys Thr Val Tyr Ala Lys Thr Ile Asp Gly
                165                 170                 175

Gln Gln Thr Ile Ile Ala Cys Ile Glu Ser His Gln Phe Gln Pro Lys
            180                 185                 190

Asn Phe Trp Asn Gly Arg Trp Arg Ser Glu Trp Lys Phe Thr Ile Thr
        195                 200                 205

Pro Pro Thr Ala Gln Val Val Gly Val Leu Lys Ile Gln Val His Tyr
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<210> 1312
<211> 231
<212> PRT
<213> Homo sapiens

<400> 1312
Ala Glu Ala Glu Val Thr Pro Pro Glu Glu Gln Gln Glu Ala Glu Glu
1 5 10 15

Pro Lys Ala Arg Val Leu Arg Ser Lys Ser Leu Cys His Asp Glu Ile
20 25 30

Glu Asn Leu Leu Asp Ser Asp His Arg Glu Leu Ile Gly Asp Tyr Ser
35 40 45

Lys Ala Phe Leu Leu Gln Thr Val Asp Gly Lys His Gln Asp Leu Lys
50 55 60

Tyr Ile Ser Pro Glu Thr Met Val Ala Leu Leu Thr Gly Lys Phe Ser
65 70 75 80

Asn Ile Val Asp Lys Phe Val Ile Val Asp Cys Arg Tyr Pro Tyr Glu
85 90 95

Tyr Glu Gly Gly His Ile Lys Thr Ala Val Asn Leu Pro Leu Glu Arg
100 105 110

Asp Ala Glu Ser Phe Leu Leu Lys Ser Pro Ile Ala Pro Cys Ser Leu
115 120 125

Asp Lys Arg Val Ile Leu Ile Phe His Cys Glu Phe Ser Ser Glu Arg
130 135 140

Gly Pro Arg Met Cys Arg Phe Ile Arg Glu Arg Asp Arg Ala Val Asn
145 150 155 160

Asp Tyr Pro Ser Leu Tyr Tyr Pro Glu Met Tyr Ile Leu Lys Gly Gly
165 170 175

Tyr Lys Glu Phe Phe Pro Gln His Pro Asn Phe Cys Glu Pro Gln Asp
180 185 190

Tyr Arg Pro Met Asn His Glu Ala Phe Lys Asp Glu Leu Lys Thr Phe
195 200 205

Arg Leu Lys Thr Arg Ser Trp Ala Gly Glu Arg Ser Arg Arg Glu Leu
210 215 220

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Gly Glu Arg Cys Val Ala Ile Ala Ala Gly Leu His Gly His Leu Ser
     50                  55                  60

Thr Thr Arg Val Leu Trp Thr Trp Ser Asn His Arg Glu Arg Leu Arg
 65                  70                  75                  80

Val Glu Phe Cys Leu Cys Arg Gly Thr Gly Ala Val Trp Trp Glu Arg
                 85                  90                  95

Pro Val Pro Gly Glu Thr Leu Glu Thr Leu Arg Glu Pro Leu
            100                 105                 110



<210> 1311
<211> 139
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (6)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1311
Ala Val Val Thr Ala Xaa Gln Val Pro Lys Gln Val Ser Trp Val Gln
  1               5                  10                  15

Gln Asp Thr Pro Pro Phe Gln Gly Ser Trp Tyr Arg Gln Lys Gln Glu
             20                  25                  30

Trp Val Leu Ser Cys Cys Arg His Thr Ala Val Val Phe Leu Gln Leu
         35                  40                  45

Ser Asn Lys Arg Leu Ser His Arg Pro Glu Leu Pro Trp Tyr Val Val
     50                  55                  60

Lys Ser Lys Thr Ser Ser Leu Gly Tyr Leu Ser Ser Phe Met Lys Gln
 65                  70                  75                  80

Val Leu Arg Thr Arg Lys Asn His Leu Pro Pro Ser Phe Val Arg Gln
                 85                  90                  95

Asn Gln Val Lys Gly Asn Met Leu Glu Asn Val Pro Arg Glu Asp Thr
            100                 105                 110

Ser Thr Phe Ala Leu Ser Asn Pro Ser Ser Glu Lys Gly Val Pro Trp
        115                 120                 125

Pro Gln Lys Glu Leu Pro Ser Phe Gly Glu Glu
    130                 135
```

Ala Asp Ala Val Glu Val Pro Ala Pro Ala Ala Val Leu Gly Gly Pro
65 70 75 80

Glu Pro Leu Met Gln Cys Thr Ala Trp Leu Asn Ala Tyr Phe His Gln
85 90 95

Pro Glu Ala Ile Glu Glu Phe Pro Val Pro Ala Leu His His Pro Val
100 105 110

Phe Gln Gln Glu Ser Phe Thr Arg Gln Val Leu Trp Lys Leu Leu Lys
115 120 125

Val Val Lys Phe Gly Glu Val Ile Ser Tyr Gln Gln Leu Ala Ala Leu
130 135 140

Ala Gly Asn Pro Lys Ala Ala Arg Ala Val Gly Gly Ala Met Arg Gly
145 150 155 160

Asn Pro Val Pro Ile Leu Ile Pro Cys His Arg Val Val Cys Ser Ser
165 170 175

Gly Xaa Val Gly Asn Tyr Ser Gly Gly Leu Ala Val Lys Glu Trp Leu
180 185 190

Leu Ala His Glu Gly His Arg Leu Gly Lys Pro Gly Leu Gly Gly Ser
195 200 205

Ser Gly Leu Ala Gly Ala Trp Leu Lys Gly Ala Gly Ala Thr Ser Gly
210 215 220

Ser Pro Pro Ala Gly Arg Asn
225 230

<210> 1310
<211> 110
<212> PRT
<213> Homo sapiens

<400> 1310
Pro Val Leu Thr Pro Ala Thr Leu Ile Tyr Phe Ser Ile Asn Cys Leu
1 5 10 15

Ser Gly Ser Gln Ser Trp Asn His His Ser Gly Arg Gly Leu Ala Cys
20 25 30

Thr Arg Met Phe Glu Val Val Ser Ser Thr Ser Gly Leu Ser Ile Cys
35 40 45

<210> 1308
<211> 75
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (13)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1308
Gly Arg Ala His Ala Ile Thr Val Ser Val Ala Asn Xaa Lys Ala Leu
1 5 10 15

Ala Lys Cys Glu Lys Tyr Met Leu Thr His Gln Glu Leu Ala Ser Asp
20 25 30

Gly Glu Ile Glu Thr Lys Leu Ile Lys Gly Asp Ile Tyr Lys Thr Arg
35 40 45

Gly Gly Gly Gln Ser Val Gln Phe Thr Asp Ile Glu Thr Leu Lys Gln
50 55 60

Glu Ser Pro Asn Gly Val Leu Trp Leu Trp Arg
65 70 75

<210> 1309
<211> 231
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (178)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1309
Leu Glu Arg Phe Ala Ser Arg Arg Pro Gln Val Leu Ala Val Arg Thr
1 5 10 15

Val Cys Asp Leu Val Leu Gly Lys Met Asp Lys Asp Cys Glu Met Lys
20 25 30

Arg Thr Thr Leu Asp Ser Pro Leu Gly Lys Leu Glu Leu Ser Gly Cys
35 40 45

Glu Gln Gly Leu His Glu Ile Lys Leu Leu Gly Lys Gly Thr Ser Ala
50 55 60

Glu Ser Ile Gln Tyr Lys Gln Ile Ile Leu Pro
65 70 75

<210> 1306
<211> 44
<212> PRT
<213> Homo sapiens

<400> 1306
Pro Thr Trp Arg Asn Pro Val Ser Thr Lys Asn Thr Lys Ile Ser Trp
1 5 10 15

Ala Leu Trp Arg Ala Pro Val Ile Pro Ala Thr Trp Glu Ala Glu Ala
20 25 30

Glu Glu Ser Leu Lys Pro Arg Arg Arg Arg Leu Gln
35 40

<210> 1307
<211> 105
<212> PRT
<213> Homo sapiens

<400> 1307
Arg Leu Cys Ala Phe Asn Lys Arg Met Thr Phe Gln Phe Asn Phe Thr
1 5 10 15

Ile Glu Asp His Leu Glu Asn Glu Leu Thr Pro Ile Arg Asp Gly Ala
20 25 30

Leu Thr Leu Asp Ser Ser Lys Glu Leu Ser Val Ser Glu Ser Gln Lys
35 40 45

Gly Glu Glu Arg Asp Arg Lys Cys Ser Ala Glu Gln Phe Asp Leu Pro
50 55 60

Gln Asp His Leu Trp Glu His Lys Ser Met Glu Asn Ala Ala Pro Ser
65 70 75 80

Gln Asp Thr Asp Ser Pro Leu Ser Ala Ala Ser Ser Ser Arg Asn Leu
85 90 95

Gly Ala Thr Trp Glu Asn Ser Pro Pro
100 105

Arg Glu Lys Thr Lys Arg Gly Cys Ile Ser Gly Asn Phe Arg Cys Ser
65 70 75 80

Ile Cys Ala Arg Lys Glu Lys Glu Lys Gly Lys Asn Arg Lys Thr Asn
85 90 95

Cys Tyr Ile Arg Ala Pro Thr Arg Arg Trp Thr
100 105

<210> 1304
<211> 69
<212> PRT
<213> Homo sapiens

<400> 1304
Lys His Ile Phe Trp Leu Ala Glu Lys Asn Lys Thr Lys Leu Leu Phe
1 5 10 15

Leu Phe Leu Ala Leu Arg Val Tyr Ser Lys Arg Asp Phe Phe Glu Leu
20 25 30

Phe Leu Tyr Tyr Phe Ser Phe Asn Cys Ala Val Val His Glu Thr Glu
35 40 45

Leu Leu Cys Phe Ser Val Arg Asp Gly Lys Gly Phe Phe Ser Ile Ser
50 55 60

Phe Met Cys Gly Ile
65

<210> 1305
<211> 75
<212> PRT
<213> Homo sapiens

<400> 1305
Lys Asn Val Ile Gly Thr Ile Asn Lys Asp Cys Glu Arg Leu Phe Lys
1 5 10 15

Ser Cys Glu Ser Leu Lys Pro Ile Ser Gln Gly Val Pro Cys Leu Asn
20 25 30

Leu Leu Leu Phe Pro Gln Arg Thr Lys Pro Val His Lys Leu Pro Lys
35 40 45

Leu Pro Phe Trp Arg Trp Lys Leu Thr Arg Arg Glu Gly Leu Leu Leu
50 55 60

20 25 30

Glu Pro Gly Arg Trp Glu Val Thr Val Ser Gln Val Cys Ala Thr Ala
35 40 45

Phe Gln Pro Gly Leu Ile Glu Trp Asp Phe Arg Leu Gln Lys Lys Lys
50 55 60

Lys Lys Xaa Xaa
65

<210> 1302
<211> 60
<212> PRT
<213> Homo sapiens

<400> 1302
Lys Tyr Pro Val Pro Arg Pro Leu Phe Thr His Ala Cys Lys Phe Thr
1 5 10 15

Gly Lys Thr Leu Glu Thr Asn Val Leu Ser Ser Thr Glu Ile Trp Pro
20 25 30

Ser Ser Leu Phe Leu Asn Cys Ser Leu Cys Val Arg His Ile Cys Leu
35 40 45

Ile Pro His Ser Ala Leu Thr Phe Arg Gln Ile Arg
50 55 60

<210> 1303
<211> 107
<212> PRT
<213> Homo sapiens

<400> 1303
Arg Ser Asp Ser Arg Ser Thr His Ala Ser Gly Arg Leu Arg Thr Ala
1 5 10 15

Gln Leu Ala Pro Pro Gly Leu Gly Arg Thr Arg Ser Gly Phe Ser Ser
20 25 30

Cys Arg Pro Tyr Gly Ala Val Phe Ser Leu Ser Arg Gly Val Arg Ala
35 40 45

Ser His Ala Gly Pro Gly Arg Glu Lys Ser Lys Ala Cys Arg Gly Cys
50 55 60

1 5 10 15

Ile Arg Pro Ser Gly Asn Leu Pro Xaa Ala Thr Lys Arg Arg Xaa Gly
20 25 30

Arg Leu Val Ile Val Asn Leu Gln Pro Thr Lys His Asp Arg His Ala
35 40 45

Asp Leu Arg Ile His Gly Tyr Val Asp Glu Val Met Thr Arg Leu Met
50 55 60

Lys His Leu Gly Leu Glu Ile Pro Ala Trp Asp Gly Pro Arg Val Leu
65 70 75 80

Glu Arg Ala Leu Pro Pro Leu Pro Ala Arg Pro Pro Pro Ser Trp Ser
85 90 95

Pro Arg Arg Asn Leu Pro Pro Gly Ser Thr Ala Leu Ser Pro Xaa Xaa
100 105 110

Pro Ser Arg Xaa Pro Ala Pro Ser Thr Thr Ala Xaa Xaa Pro Pro Ala
115 120 125

Pro Asn Gly Ser Gly Pro Pro Ala Leu Pro Pro Thr Asp Pro Pro Lys
130 135 140

Gly
145

<210> 1301
<211> 68
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (67)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (68)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1301
Thr Arg Cys Leu Leu Lys Ile Gln Lys Ile Ser Gln Val Trp Trp His
1 5 10 15

Asn Ala Val Ile Pro Ala Thr Gln Glu Ala Glu Ala Gly Glu Ser Leu

Val Met Pro Ile Ala Met Ser Ile Lys Ala Gly Thr Val Asp Glu Asp
690 695 700

Ser Ser Gly Ser Glu Phe Leu Phe Phe Asn Phe Leu His
705 710 715

<210> 1300
<211> 145
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (25)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (31)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (111)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (112)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (116)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (124)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (125)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1300
Ala Ser Arg Asn Ala Asp Leu Ser Ile Thr Leu Gly Thr Ser Leu Gln

Ala Cys Ser Arg Lys Pro Ser Pro Asp Pro Ala Leu Thr Thr Lys Ser
420 425 430

Thr Leu Thr Ser Ser Tyr Asn Cys Pro Ser Pro Tyr Ala Asp Gly Arg
435 440 445

Leu Tyr Gln Pro Tyr Gly Asp Ser Ala Gly Ser Leu His Ser Thr Ser
450 455 460

Arg Ser Gly Lys Ser Gln Pro Ser Tyr Ile Pro Phe Leu Leu Arg Glu
465 470 475 480

Glu Ser Ala Leu Asn Pro Gly Gln Gly Pro Pro Gly Leu Gly Asp Pro
485 490 495

Gly Ser Leu Phe Leu Glu Gly Gln Asp Gln Gln His Asp Pro Asp Thr
500 505 510

Asp Ser Asp Ser Asp Leu Ser Leu Glu Asp Asp Gln Ser Gly Ser Tyr
515 520 525

Ala Ser Thr His Ser Ser Asp Ser Glu Glu Glu Glu Glu Glu Glu Glu
530 535 540

Glu Glu Ala Ala Phe Pro Gly Glu Gln Gly Trp Asp Ser Leu Leu Gly
545 550 555 560

Pro Gly Ala Glu Arg Leu Pro Leu His Ser Thr Pro Lys Asp Gly Gly
565 570 575

Pro Gly Pro Gly Lys Ala Pro Trp Pro Gly Asp Phe Gly Thr Thr Ala
580 585 590

Lys Glu Ser Ser Gly Asn Gly Ala Pro Glu Glu Arg Leu Arg Glu Asn
595 600 605

Gly Asp Ala Leu Ser Arg Glu Gly Ser Leu Gly Pro Leu Pro Gly Ser
610 615 620

Ser Ala Gln Pro His Lys Gly Ile Leu Lys Lys Lys Cys Leu Pro Thr
625 630 635 640

Ile Ser Glu Lys Ser Ser Leu Leu Arg Leu Pro Leu Glu Gln Cys Thr
645 650 655

Gly Ser Ser Arg Gly Ser Ser Ala Ser Glu Gly Ser Arg Gly Xaa Pro
660 665 670

Pro Pro Arg Pro Pro Pro Arg Gln Ser Leu Gln Glu Gln Leu Asn Gly
675 680 685

Cys Gln Xaa Asn His Met Thr Ser Phe Ala Val Leu Met Asp Val Ser
145 150 155 160

Arg Arg Glu Asn Gly Glu Ile Leu Pro Leu Lys Thr Leu Thr Tyr Val
165 170 175

Ala Leu Gly Val Xaa Leu Ala Ala Leu Leu Leu Thr Phe Phe Phe Leu
180 185 190

Thr Leu Leu Arg Ile Leu Arg Ser Asn Gln His Gly Ile Arg Arg Asn
195 200 205

Leu Thr Ala Ala Leu Gly Leu Ala Gln Leu Val Phe Leu Leu Gly Ile
210 215 220

Asn Gln Ala Asp Leu Pro Phe Xaa Cys Thr Val Ile Ala Ile Leu Leu
225 230 235 240

His Phe Leu Tyr Leu Cys Thr Phe Ser Trp Ala Leu Leu Glu Ala Leu
245 250 255

His Leu Tyr Arg Ala Leu Thr Glu Val Arg Asp Val Asn Thr Gly Pro
260 265 270

Met Arg Phe Tyr Tyr Met Leu Gly Trp Gly Val Pro Ala Phe Ile Thr
275 280 285

Gly Leu Ala Val Gly Leu Asp Pro Glu Gly Tyr Gly Asn Pro Asp Phe
290 295 300

Cys Trp Leu Ser Ile Tyr Asp Thr Leu Ile Trp Ser Phe Gly Gly Pro
305 310 315 320

Val Ala Phe Ala Val Ser Met Ser Val Phe Leu Tyr Ile Leu Ala Ala
325 330 335

Arg Ala Ser Cys Ala Ala Gln Arg Gln Gly Phe Glu Lys Lys Gly Pro
340 345 350

Val Ser Gly Leu Gln Pro Ser Phe Ala Val Leu Leu Leu Leu Ser Ala
355 360 365

Thr Trp Leu Leu Ala Leu Leu Ser Val Asn Xaa Asp Thr Leu Leu Phe
370 375 380

His Tyr Leu Phe Xaa Thr Cys Asn Cys Ile Gln Gly Pro Phe Ile Phe
385 390 395 400

Leu Ser Tyr Val Val Leu Ser Lys Glu Val Arg Lys Ala Leu Lys Leu
405 410 415

<221> SITE
<222> (181)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (232)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (379)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (389)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (671)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1299
```
Val Cys Leu Gln Arg Asp Ala Pro Arg Gly Gln Ala Arg Ser Pro Gly
  1               5                  10                  15

Glu Ala Gln Glu Pro Glu Glu Leu Ala Arg Arg Gln Arg Arg His Pro
             20                  25                  30

Glu Leu Ser Gln Gly Glu Xaa Val Ala Ser Val Ile Ile Tyr Arg Thr
         35                  40                  45

Leu Ala Gly Leu Leu Pro His Asn Tyr Asp Pro Asp Lys Arg Ser Leu
     50                  55                  60

Arg Val Pro Lys Arg Pro Ile Ile Asn Thr Pro Val Val Ser Ile Ser
 65                  70                  75                  80

Val His Asp Asp Glu Glu Leu Leu Pro Arg Ala Leu Asp Lys Pro Val
                 85                  90                  95

Thr Val Gln Phe Arg Leu Leu Glu Thr Glu Glu Arg Thr Lys Pro Ile
            100                 105                 110

Cys Val Phe Trp Asn His Ser Ile Leu Val Ser Gly Thr Gly Gly Trp
        115                 120                 125

Ser Ala Arg Gly Cys Glu Val Val Phe Arg Asn Glu Ser His Val Ser
    130                 135                 140
```

Ala Leu Arg Asn Glu Met Ala Val Leu Trp Arg Leu Ser Ala Val Cys
1   5   10   15

Gly Ala Leu Gly Gly Arg Ala Leu Leu Leu Arg Thr Pro Val Val Arg
            20   25   30

Pro Ala His Ile Ser Ala Phe Leu Gln Asp Arg Pro Ile Pro Glu Trp
        35   40   45

Cys Gly Val Gln His Ile His Leu Ser Pro Ser His His Ser Gly Ser
    50   55   60

Lys Ala Ala Ser Leu His Trp Thr Ser Glu Arg Val Val Ser Val Leu
65   70   75   80

Leu Leu Gly Leu Leu Pro Ala Ala Tyr Leu Asn Pro Cys Ser Ala Met
                85   90   95

Asp Tyr Ser Leu Ala Ala Ala Leu Thr Leu His Gly His Trp Gly Leu
            100   105   110

Gly Gln Val Val Thr Asp Tyr Val His Gly Asp Ala Leu Gln Lys Ala
        115   120   125

Ala Lys Ala Gly Leu Leu Ala Leu Ser Ala Leu Thr Phe Ala Gly Leu
    130   135   140

Cys Tyr Phe Asn Tyr His Asp Val Gly Ile Cys Lys Ala Val Ala Met
145   150   155   160

Leu Trp Lys Leu

<210> 1299
<211> 717
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (39)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (147)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

275 280 285

<210> 1297
<211> 169
<212> PRT
<213> Homo sapiens

<400> 1297
Ala Ala Arg Gly Arg Ala Ala Ala Glu His Pro Ala Gly Ala Asp Ser
1 5 10 15

Met Ala Ser Pro Asp Pro Pro Ala Thr Ser Tyr Ala Pro Ser Asp Val
20 25 30

Pro Ser Gly Val Ala Leu Phe Leu Thr Ile Pro Phe Ala Phe Phe Leu
35 40 45

Pro Glu Leu Ile Phe Gly Phe Leu Val Trp Thr Met Val Ala Ala Thr
50 55 60

His Ile Val Tyr Pro Leu Leu Gln Gly Trp Val Met Tyr Val Ser Leu
65 70 75 80

Thr Ser Phe Leu Ile Ser Leu Met Phe Leu Leu Ser Tyr Leu Phe Gly
85 90 95

Phe Tyr Lys Arg Phe Glu Ser Trp Arg Val Leu Asp Ser Leu Tyr His
100 105 110

Gly Thr Thr Gly Ile Leu Tyr Met Ser Ala Ala Val Leu Gln Val His
115 120 125

Ala Thr Ile Val Ser Glu Lys Leu Leu Asp Pro Arg Ile Tyr Tyr Ile
130 135 140

Asn Ser Ala Ala Ser Phe Phe Ala Phe Ile Ala Thr Leu Leu Tyr Ile
145 150 155 160

Leu His Ala Phe Ser Ile Tyr Tyr His
165

<210> 1298
<211> 164
<212> PRT
<213> Homo sapiens

<400> 1298

```
1               5                   10                  15
Phe Leu Ser Ser Glu Val Leu Val Gly Asp Leu Met Ser Pro Phe Asp
            20                  25                  30
Gln Ser Gly Leu Gly Ala Glu Glu Ser Leu Gly Leu Leu Asp Asp Tyr
        35                  40                  45
Leu Glu Val Ala Lys His Phe Lys Pro His Gly Phe Ser Ser Asp Lys
    50                  55                  60
Ala Lys Ala Gly Ser Ser Glu Trp Leu Ala Val Asp Gly Leu Val Ser
65                  70                  75                  80
Pro Ser Asn Asn Ser Lys Glu Asp Ala Phe Ser Gly Thr Asp Trp Met
                85                  90                  95
Leu Glu Lys Met Asp Leu Lys Glu Phe Asp Leu Asp Ala Leu Leu Gly
            100                 105                 110
Ile Asp Asp Leu Glu Thr Met Pro Asp Asp Leu Leu Thr Thr Leu Asp
        115                 120                 125
Asp Thr Cys Asp Leu Phe Ala Pro Leu Val Gln Glu Thr Asn Lys Gln
    130                 135                 140
Pro Pro Gln Thr Val Asn Pro Ile Gly His Leu Pro Glu Ser Leu Thr
145                 150                 155                 160
Lys Pro Asp Gln Val Ala Pro Phe Thr Phe Leu Gln Pro Leu Pro Leu
                165                 170                 175
Ser Pro Gly Val Leu Ser Ser Thr Pro Asp His Ser Phe Ser Leu Glu
            180                 185                 190
Leu Gly Ser Glu Val Asp Ile Thr Glu Gly Asp Arg Lys Pro Asp Tyr
        195                 200                 205
Thr Ala Tyr Val Ala Met Ile Pro Gln Cys Ile Lys Glu Glu Asp Thr
    210                 215                 220
Pro Ser Asp Asn Asp Ser Gly Ile Cys Met Ser Pro Glu Ser Tyr Leu
225                 230                 235                 240
Gly Ser Pro Gln His Ser Pro Ser Thr Arg Gly Ser Pro Asn Arg Ser
                245                 250                 255
Leu Pro Ser Ser Arg Cys Ser Leu Trp Val Cys Pro Ser Gln Thr Leu
            260                 265                 270
Arg Ser Ser Trp Arg Glu Asp Gly Ser Ser Lys Ser Lys Gly
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<222> (160)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (168)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1295
Lys Thr Gly Asn Gly Arg Val Tyr Pro His Pro Gln Asp Leu Leu Ala
1 5 10 15

Ala Leu Pro Leu Ala Leu Val Leu Leu Ala Met Arg Leu Ala Phe Glu
20 25 30

Lys Ile His Trp Pro Ala Pro Glu Pro Val Xaa Xaa Cys Glu Gly Ser
35 40 45

Asp Gln Glu Ala Ser Glu Ala Gln Arg His Ala Gly Glu Thr Leu Pro
50 55 60

His Gly Arg Ala Gln Ala Lys Glu Pro Gln Leu Ser Leu Leu Ala Ala
65 70 75 80

Gln Cys Gly Leu Thr Leu Gln Gln Thr Gln Arg Trp Phe Arg Arg Arg
85 90 95

Arg Asn Gln Asp Arg Pro Gln Leu Thr Lys Lys Phe Cys Glu Ala Ser
100 105 110

Trp Arg Phe Leu Phe Tyr Leu Ser Ser Phe Val Gly Gly Leu Ser Val
115 120 125

Leu Tyr His Glu Ser Trp Leu Trp Ala Pro Val Met Cys Trp Asp Arg
130 135 140

Tyr Pro Asn Gln Thr Leu Lys Pro Ser Leu Xaa Trp Trp Xaa Leu Xaa
145 150 155 160

Gly Ala Gly Phe Leu Thr Ser Xaa Cys Leu Ile Arg Cys Leu
165 170

<210> 1296
<211> 286
<212> PRT
<213> Homo sapiens

<400> 1296
Ala His Ser Ser Ile Pro Ala Lys His Arg Asn Met Thr Glu Met Ser

Val Met Ser Gly Arg Gly Lys Gly Gly Lys Gly Leu Gly Lys Gly Gly
20 25 30

Ala Lys Arg His Arg Lys Val Leu Arg Asp Asn Ile Gln Gly Ile Thr
35 40 45

Lys Pro Ala Ile Arg Arg Leu Ala Arg Arg Gly Gly Val Lys Arg Ile
50 55 60

Ser Gly Leu Ile Tyr Glu Glu Thr Arg Gly Val Leu Lys Val Phe Leu
65 70 75 80

Glu Asn Val Ile Arg Asp Ala Val Xaa Tyr Thr Glu His Ala Lys Arg
85 90 95

Lys Thr Val Thr Ala Met Asp Val Val Tyr Ala Leu Lys Arg Gln Gly
100 105 110

Arg Thr Leu Tyr Gly Phe Gly Gly
115 120

<210> 1295
<211> 174
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (43)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (44)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (155)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (158)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE

Phe Asn Leu Cys Phe Xaa Thr Ser Gln Val Pro Val Pro Pro Ile Leu
85 90 95

Gly Phe Tyr Gln Met Lys Glu Glu Glu Val Gln Leu Arg Ile Thr Ile
100 105 110

Asn Leu Lys Leu His Glu Ser Val Lys Asn Asn Phe Glu Phe Cys Glu
115 120 125

Ala His Ile Pro Phe Tyr Asn Arg Gly Pro Ile Thr His Leu Glu Tyr
130 135 140

Lys Thr Ser Phe Gly Gln Leu Glu Val Phe Arg Glu Lys Ser Leu Leu
145 150 155 160

Ile Trp Ile Ile Gly Gln Lys Phe Pro Lys Ser Met Glu Ile Ser Leu
165 170 175

Ser Gly Thr Val Thr Phe Gly Ala Lys Ser His Glu Lys Gln Pro Phe
180 185 190

Asp Pro Ile Cys Thr Gly Glu Thr Ala Tyr Leu Lys Leu His Phe Arg
195 200 205

Ile Leu Asp Tyr Thr Leu Thr Gly Cys Tyr Ala Asp Gln His Ser Val
210 215 220

Gln Val Phe Ala Ser Gly Lys Pro Lys Ile Ser Ala His Arg Lys Leu
225 230 235 240

Ile Ser Ser Asp Tyr Tyr Ile Trp Asn Ser Lys Ala Pro Ala Pro Val
245 250 255

Thr Tyr Gly Ser Leu Leu Leu
260

<210> 1294
<211> 120
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (89)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1294
Pro Thr Arg Pro Pro Thr Arg Pro Pro Thr Arg Pro Arg Ser Cys Leu
1 5 10 15

Arg Glu Gly Tyr Asn Lys Ala Val Tyr Ile Ser Val Gln Asp Lys Glu
195 200 205

Gly Glu Lys Gly Val Asn Asn Gly Gly Glu Lys Arg Ala Asp Ser Gly
210 215 220

Glu Glu Glu Asn Thr Lys Asn Gly Gly Glu Lys Gly Ala Asp Ser Gly
225 230 235 240

Glu Glu Lys Glu Glu Gly Ile Asn Arg Glu Asp Lys Thr Asp Lys Gly
245 250 255

Gly Glu Lys Gly Lys Glu Ala Asp Lys Glu Ile Asn Lys Ser Gly Glu
260 265 270

Lys Ala Met
275

<210> 1293
<211> 263
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (32)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (86)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1293
Gln Ile His Gly Gln Val Val Gly Thr Val Thr Cys Lys Cys Asp Leu
1 5 10 15

Glu Gly Ile Met Pro Asn Val Thr Ile Ser Leu Ser Leu Pro Thr Xaa
20 25 30

Gly Ser Pro Leu Gln Asp Ile Leu Val His Pro Cys Val Thr Ser Leu
35 40 45

Asp Ser Ala Ile Leu Thr Ser Ser Ser Ile Asp Ala Met Asp Asp Ser
50 55 60

Ala Phe Ser Gly Pro Tyr Lys Phe Pro Phe Thr Pro Pro Leu Glu Ser
65 70 75 80

Gln Gly Lys Leu Xaa Leu Ile Ser Ser Leu Thr Tyr Arg Gly Asn Lys
20 25 30

Thr Xaa Val Leu Gln Ile Gly Leu Gln Xaa His His Cys Ser Gly
35 40 45

<210> 1292
<211> 275
<212> PRT
<213> Homo sapiens

<400> 1292
Gly Gly Ala Ser Asn Phe Leu Ser Trp Arg Glu Ser Ala Arg Trp Ser
1 5 10 15

Arg Gln Leu Arg Arg Thr Leu Ile Arg Leu Ser Phe Pro Ile Ser Cys
20 25 30

Gly Arg Ser His Ala Phe Gly Gly Cys Lys Met Ala Ala Thr Ser Gly
35 40 45

Thr Asp Glu Pro Val Ser Gly Glu Leu Val Ser Val Ala His Ala Leu
50 55 60

Ser Leu Pro Ala Glu Ser Tyr Gly Asn Asp Pro Asp Ile Glu Met Ala
65 70 75 80

Trp Ala Met Arg Ala Met Gln His Ala Glu Val Tyr Tyr Lys Leu Ile
85 90 95

Ser Ser Val Asp Pro Gln Phe Leu Lys Leu Thr Lys Val Asp Asp Gln
100 105 110

Ile Tyr Ser Glu Phe Arg Lys Asn Phe Glu Thr Leu Arg Ile Asp Val
115 120 125

Leu Asp Pro Glu Glu Leu Lys Ser Glu Ser Ala Lys Glu Lys Trp Arg
130 135 140

Pro Phe Cys Leu Lys Phe Asn Gly Ile Val Glu Asp Phe Asn Tyr Gly
145 150 155 160

Thr Leu Leu Arg Leu Asp Cys Ser Gln Gly Tyr Thr Glu Glu Asn Thr
165 170 175

Ile Phe Ala Pro Arg Ile Gln Phe Phe Ala Ile Glu Ile Ala Arg Asn
180 185 190

<400> 1290

```
Lys His Met Gly Ser Cys Arg Leu Leu Leu Cys Phe Phe Pro Leu Ser
1               5                   10                  15

Arg Trp Pro Gly Arg Asp Thr Thr Phe Cys Asn Gln Gly Thr Glu Asn
            20                  25                  30

Arg Arg Ala Cys Ser Gln Gln Ala Asn Ser Leu Arg Tyr Lys Ile Thr
        35                  40                  45

Tyr Arg Ser Cys Leu Arg Met Val Thr Asp Arg Pro Asp Cys Leu Gly
    50                  55                  60

His Arg Asn Thr Ser Cys Phe Pro Leu Lys Lys Val Leu Pro Glu Ala
65                  70                  75                  80

Phe Cys Leu Ser Ala Pro Cys Trp Ser Glu Val Gln Ala Asp Glu Asn
                85                  90                  95

Pro Asp Ile Ala Cys Gly Gly Leu Gln Leu Arg Lys Val Gly Arg Glu
            100                 105                 110

Ile Ile Leu Val Leu Val Gln
        115
```

<210> 1291
<211> 47
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (21)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (34)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (42)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1291

```
Ile Ser Asp Pro Tyr Ser Gln Gly Tyr Asn Tyr Ser Lys Lys Tyr Ile
1               5                   10                  15
```

```
Ser Leu Glu Ile Gly Lys Thr Leu Met Glu Asp Val Glu Asn Ser Phe
                85                  90                  95

Phe Leu Asn Val Asn Ser Gln Val Thr Thr Val Cys Gln Ala Leu Ala
            100                 105                 110

Lys Asp Pro Lys Leu Gln Gln Gly Tyr Asn Ala Met Gly Phe Ser Gln
        115                 120                 125

Gly Gly Gln Phe Leu Arg Ala Val Ala Gln Arg Cys Pro Ser Pro Pro
    130                 135                 140

Met Ile Asn Leu Ile Ser Val Gly Gly Gln His Gln Gly Val Phe Gly
145                 150                 155                 160

Leu Pro Arg Cys Pro Gly Glu Ser Ser His Ile Cys Asp Phe Ile Arg
                165                 170                 175

Lys Thr Leu Asn Ala Gly Ala Tyr Ser Lys Val Val Gln Glu Arg Leu
            180                 185                 190

Val Gln Ala Glu Tyr Trp His Asp Pro Ile Lys Glu Asp Val Tyr Arg
        195                 200                 205

Asn His Ser Ile Phe Leu Ala Asp Ile Asn Gln Glu Arg Gly Ile Asn
    210                 215                 220

Glu Ser Tyr Lys Lys Asn Leu Met Ala Leu Lys Lys Phe Val Met Val
225                 230                 235                 240

Lys Phe Leu Asn Asp Ser Ile Val Asp Pro Val Asp Ser Glu Trp Phe
                245                 250                 255

Gly Phe Tyr Arg Ser Gly Gln Ala Lys Glu Thr Ile Pro Leu Gln Glu
            260                 265                 270

Thr Ser Leu Tyr Thr Gln Asp Arg Leu Gly Leu Lys Glu Met Asp Asn
        275                 280                 285

Ala Gly Gln Leu Val Phe Leu Ala Thr Glu Gly Asp His Leu Gln Leu
    290                 295                 300

Ser Glu Glu Trp Phe Tyr Ala His Ile Ile Pro Phe Leu Gly
305                 310                 315
```

<210> 1290
<211> 119
<212> PRT
<213> Homo sapiens

<213> Homo sapiens

<220>
<221> SITE
<222> (1)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (11)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1288
Xaa Ser Leu Asn Cys Gly Ser Ile Ser Thr Xaa Thr Asn Gln Gly Ser
1 5 10 15

Pro Leu Ser Val Gly Tyr His Phe Pro Leu Leu Pro Pro Val Ile Phe
20 25 30

Thr Phe Ser Thr Thr Gly Glu Leu Met Gly Ser Glu Gly Gln Met Tyr
35 40 45

Phe Leu Phe Gly His Arg Gly Phe Pro Val Leu Cys Val Phe Leu Met
50 55 60

Lys Glu Ser Leu
65

<210> 1289
<211> 318
<212> PRT
<213> Homo sapiens

<400> 1289
Arg Leu Gln Val Val Gln Gln Trp Ile Gln Arg Ile Arg Gln Arg Pro
1 5 10 15

Gly Cys Leu Trp Leu Leu Ala Val Ala Leu Leu Pro Trp Thr Cys Ala
20 25 30

Ser Arg Ala Leu Gln His Leu Asp Pro Pro Ala Pro Leu Pro Leu Val
35 40 45

Ile Trp His Gly Met Gly Asp Ser Cys Cys Asn Pro Leu Ser Met Gly
50 55 60

Ala Ile Lys Lys Met Val Glu Lys Lys Ile Pro Gly Ile Tyr Val Leu
65 70 75 80

<222> (211)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1287
Gln Val Arg Phe Pro Ala Glu Glu Ala Ser Ser Pro Ala Pro Trp His
1 5 10 15

Pro Lys Ala Ala Ala Arg Ala Leu Pro Gln Ala Leu Ala Asn Gly Ala
20 25 30

Gln Leu Leu Leu Leu Gly Ser Ala Gly Pro Thr Met Glu Asn Gln Val
35 40 45

Gln Thr Leu Thr Ser Tyr Leu Trp Ser Arg His Leu Pro Val Glu Pro
50 55 60

Glu Glu Leu Gln Arg Arg Ala Arg His Leu Glu Lys Lys Phe Leu Glu
65 70 75 80

Asn Pro Asp Leu Ser Gln Thr Glu Glu Lys Leu Arg Gly Ala Val Leu
85 90 95

His Ala Leu Arg Lys Thr Thr Tyr His Trp Gln Glu Leu Ser Tyr Thr
100 105 110

Glu Gly Leu Ser Leu Val Tyr Met Ala Ala Arg Leu Asp Gly Gly Phe
115 120 125

Ala Ala Val Ser Arg Ala Phe His Glu Ile Arg Ala Arg Asn Pro Ala
130 135 140

Phe Gln Pro Gln Thr Leu Met Asp Phe Gly Ser Gly Thr Gly Leu Ser
145 150 155 160

Pro Gly Leu Xaa Thr Val Phe Gly Ala Arg Ala Tyr Val Asn Ile Trp
165 170 175

Cys Gly Gln Ile Thr Cys Met Trp Phe Ala Glu Asn Ser Glu Arg Gly
180 185 190

Xaa Ile Gly Ser Leu Tyr Ser Gly Leu Phe Xaa Ser Ser Thr Xaa Asn
195 200 205

Gln Xaa Xaa Leu Met Ile
210

<210> 1288
<211> 68
<212> PRT

20 25 30

Ile Cys Arg Ser Ala Gln Gly Ser Arg Arg Ser Arg Gly Ala Gly Ala
35 40 45

Ala Gly Pro Gln Pro Pro Leu Glu Arg Ala Asp Val Leu Asn Val Ser
50 55 60

Pro Gly Arg Cys Leu Pro His Gln Trp Lys Leu Ser Ser Cys Cys Lys
65 70 75 80

Thr Trp Leu Phe Xaa Glu Ser Phe Glu Ile His Arg Ser Thr Tyr Xaa
85 90 95

Val His Gln Arg Thr Xaa Gly Ala Gly Val Xaa Pro
100 105

<210> 1287
<211> 214
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (164)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (193)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (203)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (207)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (210)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE

Tyr Leu Pro Ser Val Ile Ala Gly Ala Ala Phe His Leu Ala Leu Tyr
435 440 445

Thr Val Thr Gly Gln Ser Trp Pro Glu Ser Leu Ile Arg Lys Thr Gly
450 455 460

Tyr Thr Leu Glu Ser Leu Lys Pro Cys Leu Met Asp Leu His Gln Thr
465 470 475 480

Tyr Leu Lys Ala Pro Gln His Ala Gln Gln Ser Ile Arg Glu Lys Tyr
485 490 495

Lys Asn Ser Lys Tyr His Gly Val Ser Leu Leu Asn Pro Pro Glu Thr
500 505 510

Leu Asn Leu
515

<210> 1286
<211> 108
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (85)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (96)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (102)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (107)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1286
Arg Pro Ala Cys Pro Ser Gln Glu Arg Pro Pro Pro Ser Gln Gln Met
1 5 10 15

Arg Gln Gly Cys Leu Ala Leu Pro Lys Ser Glu Ser Leu Pro Ser Gly

Leu Pro Val Asn Asp Glu His Val Thr Val Pro Pro Trp Lys Ala Asn
165 170 175

Ser Lys Gln Pro Ala Phe Thr Ile His Val Asp Glu Ala Glu Lys Glu
180 185 190

Ala Gln Lys Lys Pro Ala Glu Ser Gln Lys Ile Glu Arg Glu Asp Ala
195 200 205

Leu Ala Phe Asn Ser Ala Ile Ser Leu Pro Gly Pro Arg Lys Pro Leu
210 215 220

Val Pro Leu Asp Tyr Pro Met Asp Gly Ser Phe Glu Ser Pro His Thr
225 230 235 240

Met Asp Met Ser Ile Val Leu Glu Asp Glu Lys Pro Val Ser Val Asn
245 250 255

Glu Val Pro Asp Tyr His Glu Asp Ile His Thr Tyr Leu Arg Glu Met
260 265 270

Glu Val Lys Cys Lys Pro Lys Val Gly Tyr Met Lys Lys Gln Pro Asp
275 280 285

Ile Thr Asn Ser Met Arg Ala Ile Leu Val Asp Trp Leu Val Glu Val
290 295 300

Gly Glu Glu Tyr Lys Leu Gln Asn Glu Thr Leu His Leu Ala Val Asn
305 310 315 320

Tyr Ile Asp Arg Phe Leu Ser Ser Met Ser Val Leu Arg Gly Lys Leu
325 330 335

Gln Leu Val Gly Thr Ala Ala Met Leu Leu Ala Ser Lys Phe Glu Glu
340 345 350

Ile Tyr Pro Pro Glu Val Ala Glu Phe Val Tyr Ile Thr Asp Asp Thr
355 360 365

Tyr Thr Lys Lys Gln Val Leu Arg Met Glu His Leu Val Leu Lys Val
370 375 380

Leu Thr Phe Asp Leu Ala Ala Pro Thr Val Asn Gln Phe Leu Thr Gln
385 390 395 400

Tyr Phe Leu His Gln Gln Pro Ala Asn Cys Lys Val Glu Ser Leu Ala
405 410 415

Met Phe Leu Gly Glu Leu Ser Leu Ile Asp Ala Asp Pro Tyr Leu Lys
420 425 430

<220>
<221> SITE
<222> (74)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (97)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (126)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (135)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1285
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Gly Cys Ser Leu His Leu Trp Ala Ser Leu Ala Arg His Ala Gly Gln
  1               5                  10                  15

Cys Leu Pro Ala Pro Phe Ala Thr Ser Ser Ala Leu Arg Gly Leu Glu
             20                  25                  30

Leu Gly Glu Arg Ala Gly Gly Leu Val Gly Trp Pro Gly Leu Arg Pro
         35                  40                  45

Ala Ala Thr Thr Ile Leu Trp Pro Gly Arg Cys Glu Trp Ser Ala Gly
     50                  55                  60

Gln Ser Ala Arg Cys Leu Ala Pro Gln Xaa Ile Pro Pro Ser Thr Pro
 65                  70                  75                  80

Gly Ser Ser Asp Val Gly Gln Leu Cys Ala Gly Ala Cys Asp Pro Arg
                 85                  90                  95

Xaa Gly Leu Gly Ala Ala Ser Ile Ala Ala Asp Gly Ala Pro Arg Gly
            100                 105                 110

Pro Gly Glu Tyr Gln Pro Gly Lys Gly Ser Ala Arg Pro Xaa Thr Ala
        115                 120                 125

Asp Pro Gly Arg Ala Gly Xaa Thr Glu Val Arg Glu Pro Ala Gly Ser
    130                 135                 140

Ser Ala Gln Gln Arg Pro Lys Thr Arg Arg Val Ala Pro Leu Lys Asp
145                 150                 155                 160
```

500 505 510

Ala His His
515

<210> 1283
<211> 88
<212> PRT
<213> Homo sapiens

<400> 1283
Arg Arg Leu His Leu Phe Leu Leu Ser Leu Leu Gly Met Leu Thr Ala
1 5 10 15

Ser Gly Asn Ser Glu Leu Asn Ile Cys Phe Val Arg Lys Tyr Leu Phe
20 25 30

Phe Tyr Phe Glu Val Trp Gln Pro Ser Cys Tyr Pro Lys Ala Lys Pro
35 40 45

Leu Cys Gln Glu Ser Asn Lys Cys Leu Glu Ser Lys His Asp Val Ser
50 55 60

Ile Val Gln Pro Pro Phe Ser Trp Leu Phe Lys Gly Cys Thr Ser Cys
65 70 75 80

Ile Lys Gly Tyr Phe Met Leu Lys
85

<210> 1284
<211> 17
<212> PRT
<213> Homo sapiens

<400> 1284
Phe Cys Ile Phe Ser Arg Asp Gly Val Ser Pro Cys Trp Ser Asp Trp
1 5 10 15

Ser

<210> 1285
<211> 515
<212> PRT
<213> Homo sapiens

225 230 235 240

Gly Thr Asp Thr Val Ala Gly Leu Ala Leu Ile Lys Lys Tyr Tyr Gly
245 250 255

Thr Lys Asp Pro Val Pro Gly Tyr Ser Val Pro Ala Ala Glu His Ser
260 265 270

Thr Ile Thr Ala Trp Gly Lys Asp His Glu Lys Asp Ala Phe Glu His
275 280 285

Ile Val Thr Gln Phe Ser Ser Val Pro Val Ser Val Val Ser Asp Ser
290 295 300

Tyr Asp Ile Tyr Asn Ala Cys Glu Lys Ile Trp Gly Glu Asp Leu Arg
305 310 315 320

His Leu Ile Val Ser Arg Ser Thr Gln Ala Pro Leu Ile Ile Arg Pro
325 330 335

Asp Ser Gly Asn Pro Leu Asp Thr Val Leu Lys Val Leu Glu Ile Leu
340 345 350

Gly Lys Lys Phe Pro Val Thr Glu Asn Ser Lys Gly Tyr Lys Leu Leu
355 360 365

Pro Pro Tyr Leu Arg Val Ile Gln Gly Asp Gly Val Asp Ile Asn Thr
370 375 380

Leu Gln Glu Ile Val Glu Gly Met Lys Gln Lys Met Trp Ser Ile Glu
385 390 395 400

Asn Ile Ala Phe Gly Ser Gly Gly Gly Leu Leu Gln Lys Leu Thr Arg
405 410 415

Asp Leu Leu Asn Cys Ser Phe Lys Cys Ser Tyr Val Val Thr Asn Gly
420 425 430

Leu Gly Ile Asn Val Phe Lys Asp Pro Val Ala Asp Pro Asn Lys Arg
435 440 445

Ser Lys Lys Gly Arg Leu Ser Leu His Arg Thr Pro Ala Gly Asn Phe
450 455 460

Val Thr Leu Glu Glu Gly Lys Gly Asp Leu Glu Glu Tyr Gly Gln Asp
465 470 475 480

Leu Leu His Thr Val Phe Lys Asn Gly Lys Val Thr Lys Ser Tyr Ser
485 490 495

Phe Asp Glu Ile Arg Lys Asn Ala Gln Leu Asn Ile Glu Leu Glu Ala

<210> 1282
<211> 515
<212> PRT
<213> Homo sapiens

<400> 1282
Ser Ser Phe Phe Ser Phe Leu Ala Ala Ala Pro Gly Ser Ser Arg Arg
1 5 10 15

Ala Ala Pro Val Leu Arg Pro Glu Met Asn Pro Ala Ala Glu Ala Glu
20 25 30

Phe Asn Ile Leu Leu Ala Thr Asp Ser Tyr Lys Val Thr His Tyr Lys
35 40 45

Gln Tyr Pro Pro Asn Thr Ser Lys Val Tyr Ser Tyr Phe Glu Cys Arg
50 55 60

Glu Lys Lys Thr Glu Asn Ser Lys Leu Arg Lys Val Lys Tyr Glu Glu
65 70 75 80

Thr Val Phe Tyr Gly Leu Gln Tyr Ile Leu Asn Lys Tyr Leu Lys Gly
85 90 95

Lys Val Val Thr Lys Glu Lys Ile Gln Glu Ala Lys Asp Val Tyr Lys
100 105 110

Glu His Phe Gln Asp Asp Val Phe Asn Glu Lys Gly Trp Asn Tyr Ile
115 120 125

Leu Glu Lys Tyr Asp Gly His Leu Pro Ile Glu Ile Lys Ala Val Pro
130 135 140

Glu Gly Phe Val Ile Pro Arg Gly Asn Val Leu Phe Thr Val Glu Asn
145 150 155 160

Thr Asp Pro Glu Cys Tyr Trp Leu Thr Asn Trp Ile Glu Thr Ile Leu
165 170 175

Val Gln Ser Trp Tyr Pro Ile Thr Val Ala Thr Asn Ser Arg Glu Gln
180 185 190

Lys Lys Ile Leu Ala Lys Tyr Leu Leu Glu Thr Ser Gly Asn Leu Asp
195 200 205

Gly Leu Glu Tyr Lys Leu His Asp Phe Gly Tyr Arg Gly Val Ser Ser
210 215 220

Gln Glu Thr Ala Gly Ile Gly Ala Ser Ala His Leu Val Asn Phe Lys

Val Val Phe Gly Lys Ile Ile Asp Gly Leu Leu Val Met Arg Lys Ile
145 150 155 160

Glu Asn Val Pro Thr Gly Pro Asn Asn Lys Pro Lys Leu Pro Val Val
165 170 175

Ile Ser Gln Cys Gly Glu Met
180

<210> 1280
<211> 62
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (17)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1280
Asn Phe Cys Trp Asn Ile Ile Asn Gly Ser Ile Pro Lys Asp Thr Trp
1 5 10 15

Xaa Leu Leu Leu Asp Phe Ser Thr Met Ile Ala Asp Asp Met Ser Asn
20 25 30

Tyr Asp Glu Glu Gly Ala Trp Pro Val Leu Ile Asp Asp Phe Val Glu
35 40 45

Phe Ala Arg Pro Gln Ile Ala Gly Thr Lys Ser Thr Thr Val
50 55 60

<210> 1281
<211> 38
<212> PRT
<213> Homo sapiens

<400> 1281
Cys Ser Phe Ile Ile Leu Ile Ile Leu Gly Pro Leu Glu Phe Ala Glu
1 5 10 15

Ser Thr Leu Pro Val Leu Tyr Lys Trp Asn Asn Lys Ala Trp Met Thr
20 25 30

Ala Cys Leu Phe Thr Ser
35

Leu Phe Ser Gln Leu Phe Ile Gln Ala Val Arg Gln Thr Leu Ser Thr
130 135 140

Pro Gly Thr Ile Ile Leu Gly Thr Ile Pro Val Pro Lys Gly Lys Pro
145 150 155 160

Leu Ala Leu Val Glu Glu Ile Arg Asn Arg Lys Asp Val Lys Val Phe
165 170 175

Asn Val Thr Lys Glu Asn Arg Asn His Leu Leu Pro Asp Ile Val Thr
180 185 190

Cys Val Gln Ser Ser Arg Lys
195

<210> 1279
<211> 183
<212> PRT
<213> Homo sapiens

<400> 1279
Phe Gly Thr Glu Gly Ala Met Ala Val Ala Asn Ser Ser Pro Val Asn
1 5 10 15

Pro Val Val Phe Phe Asp Val Ser Ile Gly Gly Gln Glu Val Gly Arg
20 25 30

Met Lys Ile Glu Leu Phe Ala Asp Val Val Pro Lys Thr Ala Glu Asn
35 40 45

Phe Arg Gln Phe Cys Thr Gly Glu Phe Arg Lys Asp Gly Val Pro Ile
50 55 60

Gly Tyr Lys Gly Ser Thr Phe His Arg Val Ile Lys Asp Phe Met Ile
65 70 75 80

Gln Gly Gly Asp Phe Val Asn Gly Asp Gly Thr Gly Val Ala Ser Ile
85 90 95

Tyr Arg Gly Pro Phe Ala Asp Glu Asn Phe Lys Leu Arg His Ser Ala
100 105 110

Pro Gly Leu Leu Ser Met Ala Asn Ser Gly Pro Ser Thr Asn Gly Cys
115 120 125

Gln Phe Phe Ile Thr Cys Ser Lys Cys Asp Trp Leu Asp Gly Lys His
130 135 140

<400> 1277
Leu Asn Leu Leu Met Ser Thr Ile Leu Phe Leu Gln Asp Leu Pro Gly
1 5 10 15

Leu Lys Arg Asn Tyr Phe Pro Gly Pro Asn Thr Leu Val Phe Tyr Gln
20 25 30

His Leu Ile Asp Leu Gly Lys Ala Glu Cys Leu Thr Pro Ala Cys Gly
35 40 45

Ile Leu Leu Trp Gln Ala Glu Gln Thr Asn Thr Asp Phe Asn Ile Gln
50 55 60

Thr Lys Ser Lys Gly Met Glu Lys Asp Thr Pro Ser Gln Asn Lys Glu
65 70 75 80

Ser Ser Tyr Val Asn Leu Arg Gln Ser
85

<210> 1278
<211> 199
<212> PRT
<213> Homo sapiens

<400> 1278
Pro Gln Pro Leu Pro Pro Pro Thr Ser Met Ala Arg His Val Phe Leu
1 5 10 15

Thr Gly Pro Pro Gly Val Gly Lys Thr Thr Leu Ile His Lys Ala Ser
20 25 30

Glu Val Leu Lys Ser Ser Gly Val Pro Val Asp Gly Phe Tyr Thr Glu
35 40 45

Glu Val Arg Gln Gly Gly Arg Arg Ile Gly Phe Asp Val Val Thr Leu
50 55 60

Ser Gly Thr Arg Gly Pro Leu Ser Arg Val Gly Leu Glu Pro Pro Pro
65 70 75 80

Gly Lys Arg Glu Cys Arg Val Gly Gln Tyr Val Val Asp Leu Thr Ser
85 90 95

Phe Glu Gln Leu Ala Leu Pro Val Leu Arg Asn Ala Asp Cys Ser Ser
100 105 110

Gly Pro Gly Gln Arg Val Cys Val Ile Asp Glu Ile Gly Lys Met Glu
115 120 125

Lys His Ser Lys Ile Asn Asp Thr Glu Phe Phe Tyr Trp Arg Glu Leu
50 55 60

Val Ser Lys Cys Leu Ala Glu Tyr Ser Ser Pro Glu Cys Cys Lys Pro
65 70 75 80

Asp Leu Lys Lys Leu Val Trp Ile Val Ser Arg Arg Thr Ala Gln Asn
85 90 95

Leu His Asn Ser Tyr Tyr Ser Val Pro Glu Leu Pro Thr Ile Pro Glu
100 105 110

Gly Gly Cys Phe Asp Glu Ser Glu Ser Glu Asp Ser Cys Glu Asp Met
115 120 125

Ser Cys Gly Glu Glu Ser Leu Ser Ser Ser Pro Pro Ser Asp Gln Glu
130 135 140

Cys Thr Phe Phe Phe Asn Phe Lys Val Ala Gln Thr Leu Cys Phe Pro
145 150 155 160

Ser

<210> 1276
<211> 49
<212> PRT
<213> Homo sapiens

<400> 1276
Asn Asn Lys Ser Leu Leu Lys Lys Tyr Ile Phe Phe Leu Leu Arg Ala
1 5 10 15

Leu Leu Ala Ile Gly Asn Leu Lys Ile Ser Ser Pro Lys Gln Gly Pro
20 25 30

Tyr Gln Ile Phe Leu Asp Pro Pro Met Leu Ser Val Leu Ala Thr His
35 40 45

Cys

<210> 1277
<211> 89
<212> PRT
<213> Homo sapiens

Ile Glu Pro Leu Leu Arg Leu Leu Arg Ile Asn His Leu Leu Asn Arg
1 5 10 15

Ser Ala Tyr Gln Glu Gly Arg Glu Gly Ser Gln Lys Glu Met Leu Ala
20 25 30

Pro Gly Pro Arg Ser Gln Gly Leu Leu Thr Pro Gly Val Asp Phe Phe
35 40 45

Ser Glu Val Ala Pro Tyr Lys Gly Asn Met Ala Xaa Ala Gly Thr Ser
50 55 60

Thr Gly Arg Leu Xaa Ser Gly Xaa
65 70

<210> 1274
<211> 56
<212> PRT
<213> Homo sapiens

<400> 1274
His Leu Thr Tyr Ser Trp His Leu Val Gly Thr Glu Ser Met Asn Arg
1 5 10 15

Ser Tyr Trp Leu Pro Ile Gln Arg Leu Val Gly Val Val Ile Pro Ile
20 25 30

Ala Glu Ser Gln Leu Val Asn Gln Gln Gly Phe His Leu Cys Cys Ser
35 40 45

Pro Pro Pro Ser Pro Leu Glu Gly
50 55

<210> 1275
<211> 161
<212> PRT
<213> Homo sapiens

<400> 1275
Leu Pro Gly Cys Arg Asn Ser Ala Gln Asn Cys Arg Leu Ile Phe Ser
1 5 10 15

Lys Ala Lys Pro Ser Val Leu Ala Leu Cys Leu Leu Asn Leu Glu Val
20 25 30

Glu Thr Leu Lys Ser Val Glu Leu Leu Glu Ile Leu Leu Leu Val Lys
35 40 45

115 120

<210> 1272
<211> 86
<212> PRT
<213> Homo sapiens

<400> 1272
Gly Thr Glu Lys Arg Glu Lys Arg Leu Gly Ser His His Gly Glu Ala
1 5 10 15

Gly Val Ser Gln Leu Thr Ser Ala Gly Asp Ser Gly Val Leu Val Leu
20 25 30

Pro Leu Ser Leu Pro Pro Arg Ser Ser Leu Ala Gly Leu Ala Glu Ala
35 40 45

Leu Leu Met Asn Leu Thr Glu Gly Pro Leu Ala Met Ala Glu Met Asp
50 55 60

Pro Thr Gln Gly Arg Val Val Phe Glu Asp Val Ala Ile Tyr Phe Ser
65 70 75 80

Arg Arg Ser Gly Gly Thr
85

<210> 1273
<211> 72
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (60)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (69)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (72)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1273

<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (28)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (29)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (58)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (74)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (82)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1271

```
Leu Gln Ala Ala Gly Gly His Leu Thr Ala Ala Pro Gly Ala Val His
  1               5                  10                  15

Gly Ala Ala Ala Val Arg Phe Gln Ala Ala Ala Xaa Xaa Gln Glu Gly
             20                  25                  30

Val Glu Ala Ala Pro Arg Pro Val Ser Pro Gln Ala Ser Leu Glu Glu
         35                  40                  45

Arg Ala Val Ser Arg Asn Pro Leu Cys Xaa Leu Cys Leu Glu Glu Arg
     50                  55                  60

Arg His Pro Thr Ala Thr Pro Cys Gly Xaa Leu Phe Cys Trp Glu Cys
 65                  70                  75                  80

Ile Xaa Ala Trp Cys Ser Ser Lys Ala Glu Cys Pro Leu Leu Pro Gly
                 85                  90                  95

Glu Ser Ser Leu Pro Arg Lys Leu Ile Tyr Leu Arg His Tyr Arg Leu
            100                 105                 110

Asn Arg Arg Pro Gly Trp Ala Leu Asp Thr Asn
```

Tyr Leu Ser Thr Leu Pro Asp Leu Val Pro Gln Leu Gly Thr Leu Tyr
85 90 95

Gln Leu Met Glu Ser Arg Val Lys Thr Phe Gln Lys Leu Ser His Leu
100 105 110

His Gly Lys Leu Ile Leu Leu Ile Thr Gln Val Thr Ala Ser Glu Lys
115 120 125

Thr Lys Gly Ala Thr Ser Pro Gly Gln Lys Ala Lys Leu Val Tyr Glu
130 135 140

<210> 1270
<211> 84
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (38)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1270
Asn Ser Ala Arg Ala Thr Leu Asp Glu Ala Thr Pro Thr Leu Thr Asn
1 5 10 15

Gln Ser Pro Thr Leu Thr Leu Gln Ser Thr Asn Thr His Thr Gln Ser
20 25 30

Ser Ser Ser Ser Ser Xaa Gly Gly Leu Phe Arg Ser Arg Pro Ala His
35 40 45

Ser Leu Pro Pro Gly Glu Asp Gly Arg Val Glu Pro Tyr Val Asp Phe
50 55 60

Ala Glu Phe Tyr Arg Leu Trp Ser Val Asp His Gly Glu Gln Ser Val
65 70 75 80

Val Thr Ala Pro

<210> 1271
<211> 123

180 185 190

Leu Lys Leu Gly Asn Leu Phe Leu Asn Glu Asp Leu Glu Val Lys Ile
195 200 205

Gly Asp Phe Gly Leu Ala Thr Lys Val Glu Tyr Asp Gly Glu Arg Lys
210 215 220

Lys Thr Leu Cys Gly Thr Pro Asn Tyr Ile Ala Pro Glu Val Leu Ser
225 230 235 240

Lys Lys Gly His Ser Phe Glu Val Asp Val Trp Ser Ile Gly Cys Ile
245 250 255

Met Tyr Thr Leu Leu Val Gly Lys Pro Pro Phe Glu Thr Ser Cys Leu
260 265 270

Lys Glu Thr Tyr Leu Arg Ile Lys Lys Asn Glu Tyr Ser Ile Pro Lys
275 280 285

His Ile Asn Pro Val Ala Ala Ser Leu Ile Gln Lys Met Leu Gln Thr
290 295 300

Asp Pro Xaa Xaa Arg Gln Pro Leu Thr Xaa Cys Leu Xaa Thr Ser Asp
305 310 315 320

Leu Ser Xaa Gln Lys Lys Xaa Xaa Xaa
325

<210> 1269
<211> 144
<212> PRT
<213> Homo sapiens

<400> 1269
Leu Gln Thr Asn Ser Phe Pro Val Leu Leu Thr Gln Gly Leu Glu Ser
1 5 10 15

Asn Asp Phe Glu Met Leu Asn Lys Val Leu Gln Thr Arg Asn Val Asn
20 25 30

Leu Ile Lys Lys Thr Val Leu Arg Met Pro Leu His Thr Ile Ile Pro
35 40 45

Leu Leu Gln Glu Leu Thr Lys Arg Leu Gln Gly His Pro Asn Ser Ala
50 55 60

Val Leu Met Val Gln Trp Leu Lys Cys Val Leu Thr Val His Ala Ser
65 70 75 80

<220>
<221> SITE
<222> (327)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (328)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (329)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1268

```
Arg Cys Xaa Gly Ser Ala Arg Ile Glu Val Cys Ser Ala Phe Gly Ser
1               5                   10                  15

Met Ser Ala Ala Val Thr Ala Gly Lys Leu Ala Arg Ala Pro Ala Asp
            20                  25                  30

Pro Gly Lys Ala Gly Val Pro Gly Val Ala Ala Pro Gly Ala Pro Ala
        35                  40                  45

Ala Ala Pro Pro Ala Lys Glu Ile Pro Glu Xaa Leu Val Asp Pro Arg
    50                  55                  60

Ser Arg Arg Arg Tyr Val Arg Gly Arg Phe Leu Gly Lys Gly Gly Phe
65                  70                  75                  80

Ala Lys Cys Phe Glu Ile Ser Asp Ala Asp Thr Lys Glu Val Phe Ala
                85                  90                  95

Gly Lys Ile Val Pro Lys Ser Leu Leu Leu Lys Pro His Gln Arg Glu
            100                 105                 110

Lys Met Ser Met Glu Ile Ser Ile His Arg Ser Leu Ala His Gln His
        115                 120                 125

Val Val Gly Phe His Gly Phe Phe Glu Asp Asn Asp Phe Val Phe Val
    130                 135                 140

Val Leu Glu Leu Cys Arg Arg Arg Ser Leu Leu Glu Leu His Lys Arg
145                 150                 155                 160

Arg Lys Ala Leu Thr Glu Pro Glu Ala Arg Tyr Tyr Leu Arg Gln Ile
                165                 170                 175

Val Leu Gly Cys Gln Tyr Leu His Arg Asn Arg Val Ile His Arg Asp
```

Pro Gln Ile Pro Gly Val Thr Thr Pro Pro Thr Ala Pro Leu Ser Lys
85 90 95

Leu Glu Glu Leu Lys Glu Gln Glu Thr Glu Glu Glu Ile Pro Asp Asp
100 105 110

Ala Gln Phe Glu Met Asp Ile
115

<210> 1268
<211> 329
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (3)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (59)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (307)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (308)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (314)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (317)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (323)
<223> Xaa equals any of the naturally occurring L-amino acids

165 170 175

Val Asn Asp Pro Pro Asp Val Leu Asp Arg Gln Lys Cys Leu Ala Ala
180 185 190

Leu Ala Ser Leu Arg His Ala Lys Trp Phe Gln Ala Arg Ala Asn Gly
195 200 205

Leu Lys Ser Cys Val Ile Val Ile Arg Val Leu Arg Asp Leu Cys Thr
210 215 220

Arg Val Pro Thr Trp Gly Pro Leu Arg Gly Trp Pro Leu Glu Leu Leu
225 230 235 240

Cys Glu Lys Ser Ile Gly Thr Ala Asn Arg Pro Met Gly Ala Gly Glu
245 250 255

Ala Leu Arg Arg Val Leu Glu Cys Leu Ala Ser Gly Ile Val Met Pro
260 265 270

Asp Gly Ser Gly Ile Tyr Asp Pro Cys Glu Lys Glu Ala Thr Asp Ala
275 280 285

Ile Gly His Leu Asp Arg Gln Gln Arg Glu Asp Ile Thr Gln Ser Ala
290 295 300

Xaa Pro His Cys Gly Ser Leu Pro Ser Ala Ser Ser Ile Lys Ser
305 310 315

<210> 1267
<211> 119
<212> PRT
<213> Homo sapiens

<400> 1267
Phe Gly Arg Val Arg Pro Gln Arg Gln Ala Val Thr Leu Leu Leu Leu
1 5 10 15

Pro Leu Ala Met Ser Thr Ser Thr Ser Cys Pro Ile Pro Gly Gly Arg
20 25 30

Asp Gln Leu Pro Asp Cys Tyr Ser Thr Thr Pro Gly Gly Thr Leu Tyr
35 40 45

Ala Thr Thr Pro Gly Gly Thr Arg Ile Ile Tyr Asp Arg Lys Phe Leu
50 55 60

Leu Glu Cys Lys Asn Ser Pro Ile Ala Arg Thr Pro Pro Cys Cys Leu
65 70 75 80

Ser Ser Pro Pro Ser Glu Pro Pro Tyr Ala Gly Ser Cys Lys Ala Trp
50 55 60

Leu Ser Ala Asp Gly Ser Ser Gln Asp
65 70

<210> 1266
<211> 319
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (305)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1266
Trp Gln Ser Ile Leu Pro Phe Ile Gln His Lys Arg Ser Trp Arg Gln
1 5 10 15

Ser Arg Thr Trp Cys Ser His Thr Glu Arg Ala Leu Lys Ala Val Ser
20 25 30

Asp Trp Ile Asp Glu Gln Glu Lys Gly Ser Ser Glu Gln Ala Glu Ser
35 40 45

Asp Asn Met Asp Val Pro Pro Glu Asp Asp Ser Lys Glu Gly Ala Gly
50 55 60

Glu Gln Lys Thr Glu His Met Thr Arg Thr Leu Arg Gly Val Met Arg
65 70 75 80

Val Gly Leu Val Ala Lys Gly Leu Leu Leu Lys Gly Asp Leu Asp Leu
85 90 95

Glu Leu Val Leu Leu Cys Lys Glu Lys Pro Thr Thr Ala Leu Leu Asp
100 105 110

Lys Val Ala Asp Asn Leu Ala Ile Gln Leu Ala Ala Val Thr Glu Asp
115 120 125

Lys Tyr Glu Ile Leu Gln Ser Val Asp Asp Ala Ala Ile Val Ile Lys
130 135 140

Asn Thr Lys Glu Pro Pro Leu Ser Leu Thr Ile His Leu Thr Ser Pro
145 150 155 160

Val Val Arg Glu Glu Met Glu Lys Val Leu Ala Gly Glu Thr Leu Ser

Phe Trp Pro Cys Arg Ala Phe Gly Ile Pro Ile Arg Val Tyr Thr His
1 5 10 15

Glu Val Val Thr Leu Trp Tyr Arg Ser Pro Glu Val Leu Leu Gly Ser
20 25 30

Ala Arg Tyr Ser Thr Pro Val Asp Ile Trp Ser Ile Gly Thr Ile Phe
35 40 45

Ala Glu Leu Ala Thr Lys Lys Pro Leu Phe His Gly Asp Ser Glu Ile
50 55 60

Asp Gln Leu Phe Arg Ile Phe Arg Ala Leu Gly Thr Pro Asn Asn Glu
65 70 75 80

Val Trp Pro Glu Val Glu Ser Leu Gln Asp Tyr Lys Asn Thr Phe Pro
85 90 95

Lys Trp Lys Pro Gly Ser Leu Ala Ser His Val Lys Asn Leu Asp Glu
100 105 110

Asn Gly Leu Asp Leu Leu Ser Lys Met Leu Ile Tyr Asp Pro Ala Lys
115 120 125

Arg Ile Ser Gly Lys Met Ala Leu Asn His Pro Tyr Phe Asn Asp Leu
130 135 140

Asp Asn Gln Ile Lys Lys Met
145 150

<210> 1265
<211> 73
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (22)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1265
Pro Glu Trp Trp Pro Asp Ser Arg Ser Pro Ser Ser Pro Arg Thr Pro
1 5 10 15

Arg Ser Ser Ser Ser Xaa Pro Tyr Ser Pro Thr His Phe Pro Pro Pro
20 25 30

Leu Leu Gln Ala Gly Ser Val Phe Leu Leu Val Pro Glu Ala Leu Cys
35 40 45

<220>
<221> SITE
<222> (81)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (82)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (90)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (94)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1263
Cys Ala Arg Pro His Cys His Gly Pro Gln Ile Tyr Ser Ser Lys Gln
1 5 10 15

Ser Ser His Gly Thr Phe Pro Gln Gly Ala Val Ser Pro Val Glu Glu
20 25 30

Ser Asp Met Thr His His Thr Asp Arg Lys Ile Xaa Thr Asn Tyr Glu
35 40 45

Lys Asn Ala Glu Gly Arg Lys Asn Ile Gly Gly Pro Ala Ala Glu Ser
50 55 60

Arg Leu Thr Cys Arg Asp Leu Cys Trp Pro Gly Pro Val Leu Gly Ser
65 70 75 80

Xaa Xaa His Gly Ile Lys Ser Asn Lys Xaa Thr Val Cys Xaa His Leu
85 90 95

Thr Val Trp Glu Lys Glu Gln Ala Pro Phe Thr Gly Phe Tyr
100 105 110

<210> 1264
<211> 151
<212> PRT
<213> Homo sapiens

<400> 1264

<400> 1262

Asp Ser His Xaa Thr Xaa Xaa Pro Val Asp Pro Arg Val Arg Glu Ala
1 5 10 15

Gly Ile Pro Glu Phe Tyr Asp Tyr Asp Val Ala Leu Ile Lys Leu Lys
20 25 30

Asn Lys Leu Lys Tyr Gly Gln Thr Ile Arg Pro Ile Cys Leu Pro Cys
35 40 45

Thr Glu Gly Thr Thr Arg Ala Leu Arg Leu Pro Pro Thr Thr Thr Cys
50 55 60

Gln Gln Gln Lys Glu Glu Leu Leu Pro Ala Gln Asp Ile Lys Ala Leu
65 70 75 80

Phe Val Ser Glu Glu Glu Lys Lys Leu Thr Arg Lys Glu Val Tyr Ile
85 90 95

Lys Asn Gly Asp Lys Lys Gly Ser Cys Glu Arg Asp Ala Gln Tyr Ala
100 105 110

Pro Gly Tyr Asp Lys Val Lys Asp Ile Ser Glu Val Val Thr Pro Arg
115 120 125

Phe Leu Cys Thr Gly Gly Val Ser Pro Tyr Ala Asp Pro Asn Thr Cys
130 135 140

Arg Gly Asp Ser Gly Gly Pro Leu Ile Val His Lys Arg Ser Arg Phe
145 150 155 160

Ile Gln Val Gly Val Ile Ser Trp Gly Val Val Asp Val Cys Lys Asn
165 170 175

Gln Lys Arg Gln Lys Gln Val Pro Val Thr Pro Glu Thr Phe Thr Ser
180 185 190

Thr Ser Phe Lys Cys Cys Pro Gly
195 200

<210> 1263
<211> 110
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (44)
<223> Xaa equals any of the naturally occurring L-amino acids

1 5 10 15

Asp Val Arg Glu Val Asp Pro Xaa Gln Gly Xaa Pro Gly Arg Gly Thr
20 25 30

Gly Cys Ala Leu Pro Gln Ser Glu Asn Leu Leu Tyr Val Val Arg Lys
35 40 45

Glu Gln Gly Asp Gln Ala Glu Ser Trp Ala Gly Val Glu Trp Lys Glu
50 55 60

Arg Arg Leu Xaa Arg Thr Gly Gly Gly Gly Pro Trp Leu Leu Leu Ser
65 70 75 80

Glu Met Gly Thr Thr Gly Gly Phe Glu Gln Arg Ser Ala Leu Ile Asp
85 90 95

Leu Tyr Phe Ala Arg Val Ile Leu Ala Ala Ile Leu
100 105

<210> 1601
<211> 253
<212> PRT
<213> Homo sapiens

<400> 1601
Ala Pro Arg Ser Pro Arg Gly Arg Cys Gly Gly Thr Arg Ala Glu Ala
1 5 10 15

Ala Ala Ala Thr Trp Ala Ala Ala Gly Pro Arg Arg Arg Ala Val Arg
20 25 30

Met Ser Gly Trp Ala Asp Glu Arg Gly Gly Glu Gly Asp Gly Arg Ile
35 40 45

Tyr Val Gly Asn Leu Pro Thr Asp Val Arg Glu Lys Asp Leu Glu Asp
50 55 60

Leu Phe Tyr Lys Tyr Gly Arg Ile Arg Glu Ile Glu Leu Lys Asn Arg
65 70 75 80

His Gly Leu Val Pro Phe Ala Phe Val Arg Phe Glu Asp Pro Arg Asp
85 90 95

Ala Glu Asp Ala Ile Tyr Gly Arg Asn Gly Tyr Asp Tyr Gly Gln Cys
100 105 110

Arg Leu Arg Val Glu Phe Pro Arg Thr Tyr Gly Gly Arg Gly Gly Trp
115 120 125

Pro Arg Gly Gly Arg Asn Gly Pro Pro Thr Arg Arg Ser Asp Phe Arg
130 135 140

Val Leu Val Ser Gly Leu Pro Pro Ser Gly Ser Trp Gln Asp Leu Lys
145 150 155 160

Asp His Met Arg Glu Ala Gly Asp Val Cys Tyr Ala Asp Val Gln Lys
165 170 175

Asp Gly Val Gly Met Val Glu Tyr Leu Arg Lys Glu Asp Met Glu Tyr
180 185 190

Ala Leu Arg Lys Leu Asp Asp Thr Lys Phe Arg Ser His Glu Gly Glu
195 200 205

Thr Ser Tyr Ile Arg Val Tyr Pro Glu Arg Ser Thr Ser Tyr Gly Tyr
210 215 220

Ser Arg Ser Arg Ser Gly Ser Arg Gly Arg Asp Ser Pro Tyr Gln Ser
225 230 235 240

Arg Gly Ser Pro His Tyr Phe Ser Pro Phe Arg Pro Tyr
245 250

<210> 1602
<211> 310
<212> PRT
<213> Homo sapiens

<400> 1602
Pro Arg Ala Ala Arg Pro Pro Ala Met Glu Pro Gly Pro Asp Gly Pro
1 5 10 15

Ala Ala Ser Gly Pro Ala Ala Ile Arg Glu Gly Trp Phe Arg Glu Thr
20 25 30

Cys Ser Leu Trp Pro Gly Gln Ala Leu Ser Leu Gln Val Glu Gln Leu
35 40 45

Leu His His Arg Arg Ser Arg Tyr Gln Asp Ile Leu Val Phe Arg Ser
50 55 60

Lys Thr Tyr Gly Asn Val Leu Val Leu Asp Gly Val Ile Gln Cys Thr
65 70 75 80

Glu Arg Asp Glu Phe Ser Tyr Gln Glu Met Ile Ala Asn Leu Pro Leu
85 90 95

Cys Ser His Pro Asn Pro Arg Lys Val Leu Ile Ile Gly Gly Gly Asp
100 105 110

Gly Gly Val Leu Arg Glu Val Val Lys His Pro Ser Val Glu Ser Val
115 120 125

Val Gln Cys Glu Ile Asp Glu Asp Val Ile Gln Val Ser Lys Lys Phe
130 135 140

Leu Pro Gly Met Ala Ile Gly Tyr Ser Ser Ser Lys Leu Thr Leu His
145 150 155 160

Val Gly Asp Gly Phe Glu Phe Met Lys Gln Asn Gln Asp Ala Phe Asp
165 170 175

Val Ile Ile Thr Asp Ser Ser Asp Pro Met Gly Pro Ala Glu Ser Leu
180 185 190

Phe Lys Glu Ser Tyr Tyr Gln Leu Met Lys Thr Ala Leu Lys Glu Asp
195 200 205

Gly Val Leu Cys Cys Gln Gly Glu Cys Gln Trp Leu His Leu Asp Leu
210 215 220

Ile Lys Glu Met Arg Gln Phe Cys Gln Ser Leu Phe Pro Val Val Ala
225 230 235 240

Tyr Ala Tyr Cys Thr Ile Pro Thr Tyr Pro Ser Gly Gln Ile Gly Phe
245 250 255

Met Leu Cys Ser Lys Asn Pro Ser Thr Asn Phe Gln Glu Pro Val Gln
260 265 270

Pro Leu Thr Gln Gln Gln Val Ala Gln Met Gln Leu Lys Tyr Tyr Asn
275 280 285

Ser Asp Val His Arg Ala Ala Phe Val Leu Pro Glu Phe Ala Arg Lys
290 295 300

Ala Leu Asn Asp Val Ser
305 310

<210> 1603
<211> 41
<212> PRT
<213> Homo sapiens

<220>
<221> SITE

<222> (20)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (27)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (31)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1603
Val Asn Val Ser Gly Phe Val Gln Gly Thr Cys Lys Gly Phe Gly Ser
1 5 10 15

Met Val Arg Xaa Glu Arg Gln Glu Leu Glu Xaa Met Leu Leu Xaa Lys
20 25 30

Ser Arg Asp Ile Asn Phe Gly Val Thr
35 40

<210> 1604
<211> 132
<212> PRT
<213> Homo sapiens

<400> 1604
Ser Ala Trp Arg Ser Pro Asn Thr Ala Val Gln Pro Ala Ala Cys Pro
1 5 10 15

Lys Gln Cys Asn Pro Glu Thr Arg Pro Val Glu Lys Lys Ile Arg Ser
20 25 30

Ala Leu Pro Thr Lys Thr Val Lys Pro Val Glu Asn Lys Asp Asp Asp
35 40 45

Asp Ser Ile Ala Asp Phe Leu Asn Ser Asp Glu Glu Glu Asp Arg Val
50 55 60

Ser Leu Gln Asn Leu Lys Asn Leu Gly Glu Ser Ala Thr Leu Arg Ser
65 70 75 80

Leu Leu Leu Asn Pro His Leu Arg Gln Leu Met Val Asn Leu Asp Gln
85 90 95

Gly Glu Asp Lys Ala Lys Leu Met Arg Ala Tyr Met Gln Glu Pro Leu
100 105 110

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Phe Val Glu Phe Ala Asp Cys Cys Leu Gly Ile Val Glu Pro Ser Gln
        115                 120                 125

Asn Glu Glu Ser
    130



<210> 1605
<211> 326
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (30)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (31)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (116)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (182)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (226)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (285)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (287)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
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<222> (290)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (298)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (306)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1605
Pro Arg Ile His Leu Glu Asn Val Ser Glu Asp Glu Ile Asn Arg Leu
1 5 10 15

Leu Gly Met Val Val Asp Val Glu Asn Leu Phe Met Ser Xaa Xaa Lys
20 25 30

Glu Glu Asp Thr Asp Thr Lys Gln Val Tyr Phe Tyr Leu Phe Lys Leu
35 40 45

Leu Arg Lys Cys Ile Leu Gln Met Thr Arg Pro Val Val Glu Gly Ser
50 55 60

Leu Gly Ser Pro Pro Phe Glu Lys Pro Asn Ile Glu Gln Gly Val Leu
65 70 75 80

Asn Phe Val Gln Tyr Lys Phe Ser His Leu Ala Pro Arg Glu Arg Gln
85 90 95

Thr Met Phe Glu Leu Ser Lys Met Phe Leu Leu Cys Leu Asn Tyr Trp
100 105 110

Lys Leu Glu Xaa Pro Ala Gln Phe Arg Gln Arg Ser Gln Ala Glu Asp
115 120 125

Val Ala Thr Tyr Lys Val Asn Tyr Thr Arg Trp Leu Cys Tyr Cys His
130 135 140

Val Pro Gln Ser Cys Asp Ser Leu Pro Arg Tyr Glu Thr Thr His Val
145 150 155 160

Phe Gly Arg Ser Leu Leu Arg Ser Ile Phe Thr Val Thr Arg Arg Gln
165 170 175

Leu Leu Glu Lys Phe Xaa Val Glu Lys Asp Lys Leu Val Pro Glu Lys
180 185 190

Arg Thr Ser Ser Ser Leu Thr Ser Pro Ser Lys Ala Pro Ser Gly Leu

195 200 205

Pro Gly Phe Gly Pro Lys Phe Thr Ser Ser Leu Leu Ser Pro Phe Phe
210 215 220

Gln Xaa Gly Phe Leu Asp Trp Ser Leu Leu Ser Leu His Gly Pro Phe
225 230 235 240

Gly Ile Trp Ala Ser Thr Trp Gln Thr Cys Pro Trp Pro Arg Ser Asn
245 250 255

Leu Leu Val Leu Val Trp Gly Trp Gln Ile Pro Val His Ala Gly Gly
260 265 270

Gly Asp Leu Trp Gly Lys Leu Ser Asn Leu Gly Val Xaa Leu Xaa His
275 280 285

Ala Xaa Leu Arg Gly Asp Thr Ala Gly Xaa Pro Gly Gln Leu Gln Ser
290 295 300

Val Xaa Gly Leu Phe Pro Ala Pro Pro Ser Ser Ala Pro Ala Trp Val
305 310 315 320

Gly Ala Ala Thr Ala Pro
325

<210> 1606
<211> 94
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (32)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (35)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (70)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1606
Phe Gly Thr Trp Lys Lys Lys Lys Lys Thr Leu Arg Asp Ser Leu Cys
1 5 10 15

Glu Glu Leu Leu Thr Glu Ser Leu Ser Thr Phe Leu Pro Pro Asp Xaa
20 25 30

Glu Asp Xaa Gly Val Ser Val Ser Val Leu Ser Pro Leu Leu Phe Pro
35 40 45

Asn Gln Gly Leu Cys His Tyr Cys Pro Ser Gln Leu Ser Met Gln Glu
50 55 60

Asp Arg Val Ala Trp Xaa Ser Tyr Pro Cys Pro Ser Pro Lys Gly Ser
65 70 75 80

Thr Arg Lys Leu Lys Arg Leu Lys Lys Lys Arg Val Cys Ser
85 90

<210> 1607
<211> 246
<212> PRT
<213> Homo sapiens

<400> 1607
Ala Ala Ala Trp Cys Ala Arg Leu Ala Gly Asp Gly Ile Arg Arg Thr
1 5 10 15

Trp Thr Pro Pro Glu Trp Lys Pro Lys Gln Glu Leu Leu Leu Leu Arg
20 25 30

Gly Cys Arg Ser Arg Arg Glu Pro Pro Asp Arg Arg Gln Ser Glu Glu
35 40 45

Gly Ala Thr Arg Leu Gly Lys Met Thr Gln Phe Leu Pro Pro Asn Leu
50 55 60

Leu Ala Leu Phe Ala Pro Arg Asp Pro Ile Pro Tyr Leu Pro Pro Leu
65 70 75 80

Glu Lys Leu Pro His Glu Lys His His Asn Gln Pro Tyr Cys Gly Ile
85 90 95

Ala Pro Tyr Ile Arg Glu Phe Glu Asp Pro Arg Asp Ala Pro Pro Pro
100 105 110

Thr Arg Ala Glu Thr Arg Glu Glu Arg Met Glu Arg Lys Arg Arg Glu
115 120 125

Lys Ile Glu Arg Arg Gln Gln Glu Val Glu Thr Glu Leu Lys Met Trp
130 135 140

Asp Pro His Asn Asp Pro Asn Ala Gln Gly Asp Ala Phe Lys Thr Leu
145 150 155 160

Phe Val Ala Arg Val Asn Tyr Asp Thr Thr Glu Ser Lys Leu Arg Arg
165 170 175

Glu Phe Glu Val Tyr Gly Pro Ile Lys Arg Ile His Met Val Tyr Ser
180 185 190

Lys Arg Ser Gly Lys Pro Arg Gly Tyr Ala Phe Ile Glu Tyr Glu His
195 200 205

Glu Arg Asp Met His Ser Ala Tyr Lys His Ala Asp Gly Lys Lys Ile
210 215 220

Asp Gly Arg Arg Val Leu Val Asp Val Glu Arg Gly Arg Thr Val Lys
225 230 235 240

Gly Trp Arg Pro Gly Gly
245

<210> 1608
<211> 65
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (60)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (62)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1608
Gly Pro Ser Leu Ser Leu Met Phe Lys Gln Ser Leu Ser Met Lys Leu
1 5 10 15

Gly Gly Asp Arg Val Ser Cys Gln Phe Leu Thr Ala Thr Ser His Gln
20 25 30

Trp Leu His Ser Val Ser Leu Thr Gln His Met Ala Gln Glu Cys Cys
35 40 45

His Pro Ser Val Phe Tyr Ser Ser Asn Pro Arg Xaa Trp Xaa Leu Arg
50 55 60

Asp
65

<210> 1609
<211> 213
<212> PRT
<213> Homo sapiens

<400> 1609
Glu Ser Gln Glu Asp Lys Glu Pro Lys Glu Glu Thr Pro Ala Gly Gly
1 5 10 15

Arg Ala Ala Ala Ala Asp Pro Gly Trp Gly Ser Gln Pro Ala Gln Gln
20 25 30

Arg Ala Ala Arg Lys Ala Ser Lys Glu Glu Gly Ala Arg Arg Gly Val
35 40 45

Arg Gly Leu Gly Val Arg Pro Leu Arg Pro Leu Gly Asn Arg Glu Trp
50 55 60

Thr Ala Glu Gln Thr Val Gly Leu Ser Gly Val Trp Gly Asn Thr Gly
65 70 75 80

Asn Ser Ser Gln Glu Gly Tyr Pro Pro Tyr Trp Leu Pro Pro Pro Ala
85 90 95

Ala Gln Leu Cys Pro Pro Glu Pro Ser Val Ser Leu Asn Pro Ser Leu
100 105 110

Phe Phe Pro Thr Ser Thr Phe Trp Thr Phe Pro Leu Pro Phe Pro Val
115 120 125

Phe Lys Ile Ser Val Thr Thr Pro Gly Thr Phe Ala Ala Asp Leu Gly
130 135 140

Val Leu Phe Lys Arg Lys Ser Gly Gly Trp Glu Ser Leu Gly Glu Leu
145 150 155 160

Arg Leu Arg Val Glu Gly Val Cys Pro Ser Leu Gly Val Leu Val Pro
165 170 175

Val Arg Gly Val Tyr Gly Leu Phe Pro Ser Pro Ser Leu Ile Phe Phe
180 185 190

Phe Phe Leu Lys Lys Ala Lys Met Arg Ile Asn Thr Ser Arg His Val
195 200 205

Lys Lys Lys Lys Lys

210

<210> 1610
<211> 916
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (365)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (524)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (687)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (806)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1610
Arg Pro Thr Arg Pro Ala Gly Ser Thr Asp Cys His Gly Ala Ala Ala
1 5 10 15

Gly Val Arg Ala Thr Leu Val Leu Glu Leu Leu Asp Thr Asp Gly Leu
20 25 30

Val Val Cys Ala Arg Gly Leu Gly Ala Asp Arg Leu Leu Tyr His Phe
35 40 45

Leu Gln Leu His Cys His Pro Ala Cys Leu Val Leu Val Leu Asn Thr
50 55 60

Gln Pro Ala Glu Glu Glu Tyr Phe Ile Asn Gln Leu Lys Ile Glu Gly
65 70 75 80

Val Glu His Leu Pro Arg Arg Val Thr Asn Glu Ile Thr Ser Asn Ser
85 90 95

Arg Tyr Glu Val Tyr Thr Gln Gly Gly Val Ile Phe Ala Thr Ser Arg
100 105 110

Ile Leu Val Val Asp Phe Leu Thr Asp Arg Ile Pro Ser Asp Leu Ile
115 120 125

Thr Gly Ile Leu Val Tyr Arg Ala His Arg Ile Ile Glu Ser Cys Gln
130 135 140

Glu Ala Phe Ile Leu Arg Leu Phe Arg Gln Lys Asn Lys Arg Gly Phe
145 150 155 160

Ile Lys Ala Phe Thr Asp Asn Ala Val Ala Phe Asp Thr Gly Phe Cys
165 170 175

His Val Glu Arg Val Met Arg Asn Leu Phe Val Arg Lys Leu Tyr Leu
180 185 190

Trp Pro Arg Phe His Val Ala Val Asn Ser Phe Leu Glu Gln His Lys
195 200 205

Pro Glu Val Val Glu Ile His Val Ser Met Thr Pro Thr Met Leu Ala
210 215 220

Ile Gln Thr Ala Ile Leu Asp Ile Leu Asn Ala Cys Leu Lys Glu Leu
225 230 235 240

Lys Cys His Asn Pro Ser Leu Glu Val Glu Asp Leu Ser Leu Glu Asn
245 250 255

Ala Ile Gly Lys Pro Phe Asp Lys Thr Ile Arg His Tyr Leu Asp Pro
260 265 270

Leu Trp His Gln Leu Gly Ala Lys Thr Lys Ser Leu Val Gln Asp Leu
275 280 285

Lys Ile Leu Arg Thr Leu Leu Gln Tyr Leu Ser Gln Tyr Asp Cys Val
290 295 300

Thr Phe Leu Asn Leu Leu Glu Ser Leu Arg Ala Thr Glu Lys Ala Phe
305 310 315 320

Gly Gln Asn Ser Gly Trp Leu Phe Leu Asp Ser Ser Thr Ser Met Phe
325 330 335

Ile Asn Ala Arg Ala Arg Val Tyr His Leu Pro Asp Ala Lys Met Ser
340 345 350

Lys Lys Glu Lys Ile Ser Glu Lys Met Glu Ile Lys Xaa Gly Glu Glu
355 360 365

Thr Lys Lys Glu Leu Val Leu Glu Ser Asn Pro Lys Trp Glu Ala Leu
370 375 380

Thr Glu Val Leu Lys Glu Ile Glu Ala Glu Asn Lys Glu Ser Glu Ala
385 390 395 400

Leu Gly Gly Pro Gly Gln Val Leu Ile Cys Ala Ser Asp Asp Arg Thr
405 410 415

Cys Ser Gln Leu Arg Asp Tyr Ile Thr Leu Gly Ala Glu Ala Phe Leu
420 425 430

Leu Arg Leu Tyr Arg Lys Thr Phe Glu Lys Asp Ser Lys Ala Glu Glu
435 440 445

Val Trp Met Lys Phe Arg Lys Glu Asp Ser Ser Lys Arg Ile Arg Lys
450 455 460

Ser His Lys Arg Pro Lys Asp Pro Gln Asn Lys Glu Arg Ala Ser Thr
465 470 475 480

Lys Glu Arg Thr Leu Lys Lys Lys Lys Arg Lys Leu Thr Leu Thr Gln
485 490 495

Met Val Gly Lys Pro Glu Glu Leu Glu Glu Glu Gly Asp Val Glu Glu
500 505 510

Gly Tyr Arg Arg Glu Ile Ser Ser Ser Pro Glu Xaa Cys Pro Glu Glu
515 520 525

Ile Lys His Glu Glu Phe Asp Val Asn Leu Ser Ser Asp Ala Ala Phe
530 535 540

Gly Ile Leu Lys Glu Pro Leu Thr Ile Ile His Pro Leu Leu Gly Cys
545 550 555 560

Ser Asp Pro Tyr Ala Leu Thr Arg Val Leu His Glu Val Glu Pro Arg
565 570 575

Tyr Val Val Leu Tyr Asp Ala Glu Leu Thr Phe Val Arg Gln Leu Glu
580 585 590

Ile Tyr Arg Ala Ser Arg Pro Gly Lys Pro Leu Arg Val Tyr Phe Leu
595 600 605

Ile Tyr Gly Gly Ser Thr Glu Glu Gln Arg Tyr Leu Thr Ala Leu Arg
610 615 620

Lys Glu Lys Glu Ala Phe Glu Lys Leu Ile Arg Glu Lys Ala Ser Met
625 630 635 640

Val Val Pro Glu Glu Arg Glu Gly Arg Asp Glu Thr Asn Leu Asp Leu
645 650 655

```
Val Arg Gly Thr Ala Ser Ala Asp Val Ser Thr Asp Thr Arg Lys Ala
            660                 665                 670

Gly Gly Gln Glu Gln Asn Gly Thr Gln Gln Ser Ile Val Val Xaa Met
        675                 680                 685

Arg Glu Phe Arg Ser Glu Leu Pro Ser Leu Ile His Arg Arg Asp Ile
    690                 695                 700

Asp Ile Glu Pro Val Thr Leu Glu Val Gly Asp Tyr Ile Leu Thr Pro
705                 710                 715                 720

Glu Met Cys Val Glu Arg Lys Ser Ile Ser Asp Leu Ile Gly Ser Leu
                725                 730                 735

Asn Asn Gly Arg Leu Tyr Ser Gln Cys Ile Ser Met Ser Arg Tyr Tyr
            740                 745                 750

Lys Arg Pro Val Leu Leu Ile Glu Phe Asp Pro Ser Lys Pro Phe Ser
        755                 760                 765

Leu Thr Ser Arg Gly Ala Leu Phe Gln Glu Ile Ser Ser Asn Asp Ile
    770                 775                 780

Ser Ser Lys Leu Thr Leu Leu Thr Leu His Phe Pro Arg Leu Arg Ile
785                 790                 795                 800

Leu Trp Cys Pro Ser Xaa His Ala Thr Ala Glu Leu Phe Glu Glu Leu
                805                 810                 815

Lys Gln Ser Lys Pro Gln Pro Asp Ala Ala Thr Ala Leu Ala Ile Thr
            820                 825                 830

Ala Asp Ser Glu Thr Leu Pro Glu Ser Glu Lys Tyr Asn Pro Gly Pro
        835                 840                 845

Gln Asp Phe Leu Leu Lys Met Pro Gly Val Asn Ala Lys Asn Cys Arg
    850                 855                 860

Ser Leu Met His His Val Lys Asn Ile Ala Glu Leu Ala Ala Leu Ser
865                 870                 875                 880

Gln Asp Glu Leu Thr Ser Ile Leu Gly Asn Ala Ala Asn Ala Lys Gln
                885                 890                 895

Leu Tyr Asp Phe Ile His Thr Ser Phe Ala Glu Val Val Ser Lys Gly
            900                 905                 910

Lys Gly Lys Lys
        915
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<210> 1611
<211> 197
<212> PRT
<213> Homo sapiens

<400> 1611
Gly Gly Gly Pro Ala Pro Gly Asp Ile Val Phe Cys Arg Asn Gln Pro
1 5 10 15

Lys Asp Glu Asp Ala Asp Met Met Lys Tyr Ile Glu Thr Glu Leu Lys
20 25 30

Lys Arg Lys Gly Ile Val Glu His Glu Glu Gln Lys Val Lys Pro Lys
35 40 45

Asn Ala Glu Asp Cys Leu Tyr Glu Leu Pro Glu Asn Ile Arg Val Ser
50 55 60

Ser Ala Lys Lys Thr Glu Glu Met Leu Ser Asn Gln Met Leu Ser Gly
65 70 75 80

Ile Pro Glu Val Asp Leu Gly Ile Asp Ala Lys Ile Lys Asn Ile Ile
85 90 95

Ser Thr Glu Asp Ala Lys Ala Arg Leu Leu Ala Glu Gln Gln Asn Lys
100 105 110

Lys Lys Asp Ser Glu Thr Ser Phe Val Pro Thr Asn Met Ala Val Asn
115 120 125

Tyr Val Gln His Asn Arg Phe Tyr His Glu Glu Leu Asn Ala Pro Ile
130 135 140

Arg Arg Asn Lys Glu Glu Pro Lys Ala Arg Pro Leu Arg Val Gly Asp
145 150 155 160

Thr Glu Lys Pro Glu Pro Glu Arg Ser Pro Pro Asn Arg Lys Arg Pro
165 170 175

Ala Asn Glu Lys Ala Thr Asp Asp Tyr His Tyr Glu Lys Phe Lys Lys
180 185 190

Met Asn Arg Arg Tyr
195

<210> 1612
<211> 476

<212> PRT
<213> Homo sapiens

<400> 1612
Pro Arg Val Arg Gly Asp Val Gly Met Ala Gly Val Ala Ile Asp Thr
1   5   10   15

Val Glu Asp Thr Lys Ile Leu Phe Asp Gly Ile Pro Leu Glu Lys Met
            20   25   30

Ser Val Ser Met Thr Met Asn Gly Ala Val Ile Pro Val Leu Ala Asn
        35   40   45

Phe Ile Val Thr Gly Glu Glu Gln Gly Val Pro Lys Glu Lys Leu Thr
    50   55   60

Gly Thr Ile Gln Asn Asp Ile Leu Lys Glu Phe Met Val Arg Asn Thr
65   70   75   80

Tyr Ile Phe Pro Pro Glu Pro Ser Met Lys Ile Ile Ala Asp Ile Phe
                85   90   95

Glu Tyr Thr Ala Lys His Met Pro Lys Phe Asn Ser Ile Ser Ile Ser
            100   105   110

Gly Tyr His Met Gln Glu Ala Gly Ala Asp Ala Ile Leu Glu Leu Ala
        115   120   125

Tyr Thr Leu Ala Asp Gly Leu Glu Tyr Ser Arg Thr Gly Leu Gln Ala
    130   135   140

Gly Leu Thr Ile Asp Glu Phe Ala Pro Arg Leu Ser Phe Phe Trp Gly
145   150   155   160

Ile Gly Met Asn Phe Tyr Met Glu Ile Ala Lys Met Arg Ala Gly Arg
                165   170   175

Arg Leu Trp Ala His Leu Ile Glu Lys Met Phe Gln Pro Lys Asn Ser
            180   185   190

Lys Ser Leu Leu Leu Arg Ala His Cys Gln Thr Ser Gly Trp Ser Leu
        195   200   205

Thr Glu Gln Asp Pro Tyr Asn Asn Ile Val Arg Thr Ala Ile Glu Ala
    210   215   220

Met Ala Ala Val Phe Gly Gly Thr Gln Ser Leu His Thr Asn Ser Phe
225   230   235   240

Asp Glu Ala Leu Gly Leu Pro Thr Val Lys Ser Ala Arg Ile Ala Arg
                245   250   255

Asn Thr Gln Ile Ile Ile Gln Glu Glu Ser Gly Ile Pro Lys Val Ala
260 265 270

Asp Pro Trp Gly Gly Ser Tyr Met Met Glu Cys Leu Thr Asn Asp Val
275 280 285

Tyr Asp Ala Ala Leu Lys Leu Ile Asn Glu Ile Glu Glu Met Gly Gly
290 295 300

Met Ala Lys Ala Val Ala Glu Gly Ile Pro Lys Leu Arg Ile Glu Glu
305 310 315 320

Cys Ala Ala Arg Arg Gln Ala Arg Ile Asp Ser Gly Ser Glu Val Ile
325 330 335

Val Gly Val Asn Lys Tyr Gln Leu Glu Lys Glu Asp Ala Val Glu Val
340 345 350

Leu Ala Ile Asp Asn Thr Ser Val Arg Asn Arg Gln Ile Glu Lys Leu
355 360 365

Lys Lys Ile Lys Ser Ser Arg Asp Gln Ala Leu Ala Glu Arg Cys Leu
370 375 380

Ala Ala Leu Thr Glu Cys Ala Ala Ser Gly Asp Gly Asn Ile Leu Ala
385 390 395 400

Leu Ala Val Asp Ala Ser Arg Ala Arg Cys Thr Val Gly Glu Ile Thr
405 410 415

Asp Ala Leu Lys Lys Val Phe Gly Glu His Lys Ala Asn Asp Arg Met
420 425 430

Val Ser Gly Ala Tyr Arg Gln Glu Phe Gly Glu Ser Lys Glu Ile Thr
435 440 445

Ser Ala Ile Lys Arg Val His Lys Phe Met Glu Arg Glu Gly Arg Ser
450 455 460

Ser Ser Ser Cys Ser Lys Asn Gly Thr Arg Trp Pro
465 470 475

<210> 1613
<211> 319
<212> PRT
<213> Homo sapiens

<220>

<221> SITE
<222> (84)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (85)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (289)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1613
Gln His His Arg Ala Ala His Leu Lys Trp Ile Phe Val Gly Gly Lys
1 5 10 15

Gly Gly Val Gly Lys Thr Thr Cys Ser Cys Ser Leu Ala Val Gln Leu
20 25 30

Ser Lys Gly Arg Glu Ser Val Leu Ile Ile Ser Thr Asp Pro Ala His
35 40 45

Asn Ile Ser Asp Ala Phe Asp Gln Lys Phe Ser Lys Val Pro Thr Lys
50 55 60

Val Lys Gly Tyr Asp Asn Leu Phe Ala Met Glu Ile Asp Pro Ser Leu
65 70 75 80

Gly Val Ala Xaa Xaa Pro Asp Glu Phe Phe Glu Glu Asp Asn Met Leu
85 90 95

Ser Met Gly Lys Lys Met Met Gln Glu Ala Met Ser Ala Phe Pro Gly
100 105 110

Ile Asp Glu Ala Met Ser Tyr Ala Glu Val Met Arg Leu Val Lys Gly
115 120 125

Met Asn Phe Ser Val Val Val Phe Asp Thr Ala Pro Thr Gly His Thr
130 135 140

Leu Arg Leu Leu Asn Phe Pro Thr Ile Val Glu Arg Gly Leu Gly Arg
145 150 155 160

Leu Met Gln Ile Lys Asn Gln Ile Ser Pro Phe Ile Ser Gln Met Cys
165 170 175

Asn Met Leu Gly Leu Gly Asp Met Asn Ala Asp Gln Leu Ala Ser Lys
180 185 190

Leu Glu Glu Thr Leu Pro Val Ile Arg Ser Val Ser Glu Gln Phe Lys
195 200 205

Asp Pro Glu Gln Thr Thr Phe Ile Cys Val Cys Ile Ala Glu Phe Leu
210 215 220

Ser Leu Tyr Glu Thr Glu Arg Leu Ile Gln Glu Leu Ala Lys Cys Lys
225 230 235 240

Ile Asp Thr His Asn Ile Ile Val Asn Gln Leu Val Phe Pro Asp Pro
245 250 255

Glu Lys Pro Cys Lys Met Cys Glu Ala Arg His Lys Ile Gln Ala Lys
260 265 270

Tyr Leu Asp Gln Met Glu Asp Leu Tyr Glu Asp Phe His Ile Val Lys
275 280 285

Xaa Pro Leu Leu Pro His Glu Val Arg Gly Ala Asp Lys Val Asn Thr
290 295 300

Phe Ser Ala Leu Leu Leu Glu Pro Tyr Lys Pro Pro Ser Ala Gln
305 310 315

<210> 1614
<211> 207
<212> PRT
<213> Homo sapiens

<400> 1614
His Glu Glu Arg Gly Gln Gly Arg Phe Leu Lys Met Ala Ala Leu Lys
1 5 10 15

Ala Leu Val Ser Gly Cys Gly Arg Leu Leu Arg Gly Leu Leu Ala Gly
20 25 30

Pro Ala Ala Thr Ser Trp Ser Arg Leu Pro Ala Arg Gly Phe Arg Glu
35 40 45

Val Val Glu Thr Gln Glu Gly Lys Thr Thr Ile Ile Glu Gly Arg Ile
50 55 60

Thr Ala Thr Pro Lys Glu Ser Pro Asn Pro Pro Asn Pro Ser Gly Gln
65 70 75 80

Cys Pro Ile Cys Arg Trp Asn Leu Lys His Lys Tyr Asn Tyr Asp Asp
85 90 95

Val Leu Leu Leu Ser Gln Phe Ile Arg Pro His Gly Gly Met Leu Pro

100 105 110

Arg Lys Ile Thr Gly Leu Cys Gln Glu Glu His Arg Lys Ile Glu Glu
115 120 125

Cys Val Lys Met Ala His Arg Ala Gly Leu Leu Pro Asn His Arg Pro
130 135 140

Arg Leu Pro Glu Gly Val Val Pro Lys Ser Lys Pro Gln Leu Asn Arg
145 150 155 160

Tyr Leu Thr Arg Trp Ala Pro Gly Ser Val Lys Pro Ile Tyr Lys Lys
165 170 175

Gly Pro Arg Trp Asn Arg Val Arg Met Pro Val Gly Ser Pro Leu Leu
180 185 190

Arg Asp Asn Val Cys Tyr Ser Arg Thr Pro Trp Lys Leu Tyr His
195 200 205

<210> 1615
<211> 304
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (174)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1615
Pro Thr Arg Pro Arg Val His Leu Ala Thr Val Ser Ala Ser Ala Ala
1 5 10 15

Trp Asp Ala Leu Gly Leu Pro Val Arg Ser His Met Gln Gly Ser Thr
20 25 30

Arg Arg Met Gly Val Met Thr Asp Val His Arg Arg Phe Leu Gln Leu
35 40 45

Leu Met Thr His Gly Val Leu Glu Glu Trp Asp Val Lys Arg Leu Gln
50 55 60

Thr His Cys Tyr Lys Val His Asp Arg Asn Ala Thr Val Asp Lys Leu
65 70 75 80

Glu Asp Phe Ile Asn Asn Ile Asn Ser Val Leu Glu Ser Leu Tyr Ile
85 90 95

Glu Ile Lys Arg Gly Val Thr Glu Asp Asp Gly Arg Pro Ile Tyr Ala
100 105 110

Leu Val Asn Leu Ala Thr Thr Ser Ile Ser Lys Met Ala Thr Asp Phe
115 120 125

Ala Glu Asn Glu Leu Asp Leu Phe Arg Lys Ala Leu Glu Leu Ile Ile
130 135 140

Asp Ser Glu Thr Gly Phe Ala Ser Ser Thr Asn Ile Leu Asn Leu Val
145 150 155 160

Asp Gln Leu Lys Gly Lys Lys Met Arg Lys Lys Glu Ala Xaa Gln Val
165 170 175

Leu Gln Lys Phe Val Gln Asn Lys Trp Leu Ile Glu Lys Glu Gly Glu
180 185 190

Phe Thr Leu His Gly Arg Ala Ile Leu Glu Met Glu Gln Tyr Ile Arg
195 200 205

Glu Thr Tyr Pro Asp Ala Val Lys Ile Cys Asn Ile Cys His Ser Leu
210 215 220

Leu Ile Gln Gly Gln Ser Cys Glu Thr Cys Gly Ile Arg Met His Leu
225 230 235 240

Pro Cys Val Ala Lys Tyr Phe Gln Ser Asn Ala Glu Pro Arg Cys Pro
245 250 255

His Cys Asn Asp Tyr Trp Pro His Glu Ile Pro Lys Val Phe Asp Pro
260 265 270

Glu Lys Glu Arg Glu Ser Gly Val Leu Lys Ser Asn Lys Lys Ser Cys
275 280 285

Gly Pro Gly Ser Ile Ser His Arg Ala Leu Leu Arg Gly Trp Leu Pro
290 295 300

<210> 1616
<211> 223
<212> PRT
<213> Homo sapiens

<220>
<221> SITE

<222> (3)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (9)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (216)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1616

```
Ala Glu Xaa Leu Gly Gly Pro Gly Xaa Ala Ser Gly Gly Glu Thr Ser
1               5                   10                  15

Val Glu Arg Arg Arg Thr Cys Ala Phe Asp Thr Leu Glu Ala Phe Leu
            20                  25                  30

Ile Met Asp Gly Glu Asp Ile Pro Asp Phe Ser Ser Leu Lys Glu Glu
        35                  40                  45

Thr Ala Tyr Trp Lys Glu Leu Ser Leu Lys Tyr Lys Gln Arg Ala Thr
    50                  55                  60

Ile Val Ser Leu Glu Asp Phe Glu Gln Arg Leu Asn Gln Ala Ile Glu
65                  70                  75                  80

Arg Asn Ala Phe Leu Glu Ser Glu Leu Asp Glu Lys Glu Ser Leu Leu
                85                  90                  95

Val Ser Val Gln Arg Leu Lys Asp Glu Ala Arg Asp Leu Arg Gln Glu
            100                 105                 110

Leu Ala Val Arg Glu Arg Gln Gln Glu Val Thr Arg Lys Ser Ala Pro
        115                 120                 125

Ser Ser Pro Thr Leu Asp Cys Glu Lys Met Asp Ser Ala Val Gln Ala
    130                 135                 140

Ser Leu Ser Leu Pro Ala Thr Pro Val Gly Lys Gly Thr Glu Asn Thr
145                 150                 155                 160

Phe Pro Ser Pro Lys Ala Ile Pro Asn Gly Phe Gly Thr Ser Pro Leu
                165                 170                 175

Thr Pro Ser Ala Arg Ile Ser Ala Leu Asn Ile Val Gly Gly Ser Leu
            180                 185                 190

Thr Glu Ser Arg Gly Phe Arg Ile Gln Ile Ser Ser Leu Gln Glu Phe
```

195 200 205

Cys Lys Gly Pro Ser Ile Thr Xaa Ile Leu Tyr Phe Arg Glu Cys
210 215 220

<210> 1617
<211> 138
<212> PRT
<213> Homo sapiens

<400> 1617
Val Lys Gln Tyr Leu Arg Thr Gly Tyr Lys Gln Tyr Phe Leu Lys Leu
1 5 10 15

Ser Pro Ile Phe Pro Pro Met Arg Pro Phe Gln Thr Gln Ile Ser His
20 25 30

Asn Arg Ala Arg Thr Ile Ile Thr Ser Pro Asp Ser Glu Pro Glu Cys
35 40 45

Phe Pro Gln Asp Cys Val Ala Pro Asn Ala Leu Arg Ser Ile Val Gly
50 55 60

Glu Ser Cys His Trp Asp Ser Thr Ser Arg Pro Gly Asp Gln Ala Ser
65 70 75 80

Arg Ile Pro Leu Glu Thr Pro Pro Leu Phe His Tyr His Pro Ala Thr
85 90 95

Ser Ser Ser Ala Met Pro Trp Phe Pro Leu Glu Ser Ser Gln Ser Gln
100 105 110

Arg Arg Pro Pro Thr Thr Ser Lys Ala Ser Lys Val Leu Glu Ser Ala
115 120 125

Pro Arg Leu Asn Arg Ala Ser Ile Ser Ser
130 135

<210> 1618
<211> 388
<212> PRT
<213> Homo sapiens

<400> 1618
Ala Glu Ser Thr Ala Arg Val Cys Cys Pro Ser Pro Arg Tyr Ala Gln
1 5 10 15

Ser Arg Arg Ser Pro Ala Trp Gly Glu Gln Ser Asp His Arg Pro Gly
20 25 30

Ala Ala Arg Arg Asp Ala Arg Cys Ala Leu Cys Pro Arg Ala Pro Thr
35 40 45

Ala Pro Ala Ala Ala Ala Glu Ala Gln Arg Glu Asn Ala Pro Pro Arg
50 55 60

Gly Pro Gly Ala Ala Ser Asp Pro Leu Ala Thr Cys Ala Gln Pro Glu
65 70 75 80

Val Ser Ser Glu Arg Arg Ala Gly Gly Gln Arg Gly Val Arg Gly Pro
85 90 95

Pro Pro Ala Ala Arg Ala Arg Pro Leu Met Ala Ala Ile Arg Lys Lys
100 105 110

Leu Val Val Val Gly Asp Gly Ala Cys Gly Lys Thr Cys Leu Leu Ile
115 120 125

Val Phe Ser Lys Asp Glu Phe Pro Glu Val Tyr Val Pro Thr Val Phe
130 135 140

Glu Asn Tyr Val Ala Asp Ile Glu Val Asp Gly Lys Gln Val Glu Leu
145 150 155 160

Ala Leu Trp Asp Thr Ala Gly Gln Glu Asp Tyr Asp Arg Leu Arg Pro
165 170 175

Leu Ser Tyr Pro Asp Thr Asp Val Ile Leu Met Cys Phe Ser Val Asp
180 185 190

Ser Pro Asp Ser Leu Glu Asn Ile Pro Glu Lys Trp Val Pro Glu Val
195 200 205

Lys His Phe Cys Pro Asn Val Pro Ile Ile Leu Val Ala Asn Lys Lys
210 215 220

Asp Leu Arg Ser Asp Glu His Val Arg Thr Glu Leu Ala Arg Met Lys
225 230 235 240

Gln Glu Pro Val Arg Thr Asp Asp Gly Arg Ala Met Ala Val Arg Ile
245 250 255

Gln Ala Tyr Asp Tyr Leu Glu Cys Ser Ala Lys Thr Lys Glu Gly Val
260 265 270

Arg Glu Val Phe Glu Thr Ala Thr Arg Ala Ala Ala Glu Ala Leu Arg
275 280 285

Leu Pro Glu Arg Leu His Gln Leu Leu Gln Gly Ala Met Arg Ala Ala
290 295 300

Pro Val Ala Pro Ala Pro Ala Gly Thr Ala Pro Pro Pro Gly Pro Val
305 310 315 320

Pro Arg Glu Pro Gly Glu Gly Glu Thr Arg Val Pro Gln Gly Pro His
325 330 335

Arg Pro Ala Trp His Leu Ser Ala Asp Ala Ser Gly Leu Arg Gln Asp
340 345 350

Leu Ala Trp Ala Pro Gly Ala Pro Ile Pro Val Ser Val Cys Val Gln
355 360 365

Leu Cys Cys Thr Gly Leu Gly Ser Pro Leu Ser Ala Lys Gly Pro Leu
370 375 380

Ser Met Leu Phe
385

<210> 1619
<211> 184
<212> PRT
<213> Homo sapiens

<400> 1619
Val Pro Val Arg Asn Ser Arg Val Asp Pro Arg Val Arg Gly Thr Arg
1 5 10 15

Gly Arg Thr Arg Gly Arg Glu Gly Arg Ser Leu Trp Arg Lys Met Ala
20 25 30

Ala Ala Trp Gly Ser Ser Leu Thr Ala Ala Thr Gln Arg Ala Val Thr
35 40 45

Pro Trp Pro Arg Gly Arg Leu Leu Thr Ala Ser Leu Gly Pro Gln Ala
50 55 60

Arg Arg Glu Ala Ser Ser Ser Ser Pro Glu Ala Gly Glu Gly Gln Ile
65 70 75 80

Arg Leu Thr Asp Ser Cys Val Gln Arg Leu Leu Glu Ile Thr Glu Gly
85 90 95

Ser Glu Phe Leu Arg Leu Gln Val Glu Gly Gly Gly Cys Ser Gly Phe
100 105 110

Gln Tyr Lys Phe Ser Leu Asp Thr Val Ile Asn Pro Asp Asp Arg Val

115 120 125

Phe Glu Gln Gly Gly Ala Arg Val Val Val Asp Ser Asp Ser Leu Ala
130 135 140

Phe Val Lys Gly Ala Gln Val Asp Phe Ser Gln Glu Leu Ile Arg Ser
145 150 155 160

Ser Phe Gln Val Leu Asn Asn Pro Gln Ala Gln Gln Gly Cys Ser Cys
165 170 175

Gly Ser Ser Phe Ser Ile Lys Leu
180

<210> 1620
<211> 468
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (1)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (4)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1620
Xaa Ala Pro Xaa Gly Pro Pro Ala Pro Pro Ala Leu Pro Pro Ala Ala
1 5 10 15

Ser Pro Gly Ala Pro Ala Arg Arg Pro Gly Gly Arg Ser Glu Glu Lys
20 25 30

Ile Ser Asp Ser Glu Gly Phe Lys Ala Asn Leu Ser Leu Leu Arg Arg
35 40 45

Pro Gly Glu Lys Thr Tyr Thr Gln Arg Cys Arg Leu Phe Val Gly Asn
50 55 60

Leu Pro Ala Asp Ile Thr Glu Asp Glu Phe Lys Arg Leu Phe Ala Lys
65 70 75 80

Tyr Gly Glu Pro Gly Glu Val Phe Ile Asn Lys Gly Lys Gly Phe Gly
85 90 95

Phe Ile Lys Leu Glu Ser Arg Ala Leu Ala Glu Ile Ala Lys Ala Glu

100 105 110

Leu Asp Asp Thr Pro Met Arg Gly Arg Gln Leu Arg Val Arg Phe Ala
115 120 125

Thr His Ala Ala Ala Leu Ser Val Arg Asn Leu Ser Pro Tyr Val Ser
130 135 140

Asn Glu Leu Leu Glu Glu Ala Phe Ser Gln Phe Gly Pro Ile Glu Arg
145 150 155 160

Ala Val Val Ile Val Asp Asp Arg Gly Arg Ser Thr Gly Lys Gly Ile
165 170 175

Val Glu Phe Ala Ser Lys Pro Ala Ala Arg Lys Ala Phe Glu Arg Cys
180 185 190

Ser Glu Gly Val Phe Leu Leu Thr Thr Thr Pro Arg Pro Val Ile Val
195 200 205

Glu Pro Leu Glu Gln Leu Asp Asp Glu Asp Gly Leu Pro Glu Lys Leu
210 215 220

Ala Gln Lys Asn Pro Met Tyr Gln Lys Glu Arg Glu Thr Pro Pro Arg
225 230 235 240

Phe Ala Gln His Gly Thr Phe Glu Tyr Glu Tyr Ser Gln Arg Trp Lys
245 250 255

Ser Leu Asp Glu Met Glu Lys Gln Gln Arg Glu Gln Val Glu Lys Asn
260 265 270

Met Lys Asp Ala Lys Asp Lys Leu Glu Ser Glu Met Glu Asp Ala Tyr
275 280 285

His Glu His Gln Ala Asn Leu Leu Arg Gln Asp Leu Met Arg Arg Gln
290 295 300

Glu Glu Leu Arg Arg Met Glu Glu Leu His Asn Gln Glu Met Gln Lys
305 310 315 320

Arg Lys Glu Met Gln Leu Arg Gln Glu Glu Glu Arg Arg Arg Arg Glu
325 330 335

Glu Glu Met Met Ile Arg Gln Arg Glu Met Glu Glu Gln Met Arg Arg
340 345 350

Gln Arg Glu Glu Ser Tyr Ser Arg Met Gly Tyr Met Asp Pro Arg Glu
355 360 365

Arg Asp Met Arg Met Gly Gly Gly Gly Ala Met Asn Met Gly Asp Pro

370 375 380

Tyr Gly Ser Gly Gly Gln Lys Phe Pro Pro Leu Gly Gly Gly Gly Gly
385 390 395 400

Ile Gly Tyr Glu Ala Asn Pro Gly Val Pro Pro Ala Thr Met Ser Gly
405 410 415

Ser Met Met Gly Ser Asp Met Arg Thr Glu Arg Phe Gly Gln Gly Gly
420 425 430

Ala Gly Pro Val Gly Gly Gln Gly Pro Arg Gly Met Gly Pro Gly Thr
435 440 445

Pro Ala Gly Tyr Gly Arg Gly Arg Glu Glu Tyr Glu Gly Pro Asn Lys
450 455 460

Lys Pro Arg Phe
465

<210> 1621
<211> 114
<212> PRT
<213> Homo sapiens

<400> 1621
Ala Pro Ala Pro Thr Ser Cys Ser Leu Lys Pro Cys Ile Gly His Pro
1 5 10 15

Val Pro Ser Ser Gly Tyr Ser Cys His Val Gly Pro Thr Leu Ser Cys
20 25 30

Gly Thr Lys Arg Gly Thr Gln His Gly Asn Leu Thr Pro Glu Arg Ser
35 40 45

Asp Val Trp Phe Ala Leu Gln Leu Asn Arg Lys Leu Arg Leu Gly Val
50 55 60

Gly Asn Arg Ala Ile Arg Thr Glu Lys Ile Ile Cys Arg Asp Val Ala
65 70 75 80

Arg Gly Tyr Glu Asn Val Pro Ile Pro Cys Val Lys Val Trp Met Gly
85 90 95

Ser Pro Ala Leu Arg Ile Thr Ser Thr Ser Gln Arg Thr Ala Arg Arg
100 105 110

Pro Pro

<210> 1622
<211> 399
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (10)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (15)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (397)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1622
Glu Val Cys His Gly Gly His Arg Gly Xaa Leu Gln Ser Trp Xaa Pro
1   5   10   15

Pro Arg Glu Ala Glu Ser Leu Gln Pro Met Thr Val Val Gly Thr Asp
            20   25   30

Tyr Val Phe His Asn Asp Thr Lys Val Val Phe Leu Ser Pro Ala Val
        35   40   45

Pro Glu Glu Pro Glu Ala Tyr Asn Leu Thr Val Leu Ile Glu Met Asp
    50   55   60

Gly His Arg Ala Leu Leu Arg Thr Glu Ala Gly Ala Phe Glu Tyr Val
65   70   75   80

Pro Asp Pro Thr Phe Glu Asn Phe Thr Gly Gly Val Lys Lys Gln Val
                85   90   95

Asn Lys Leu Ile His Ala Arg Gly Thr Asn Leu Asn Lys Ala Met Thr
            100   105   110

Leu Gln Glu Ala Glu Ala Phe Val Gly Ala Glu Arg Cys Thr Met Lys
        115   120   125

Thr Leu Thr Glu Thr Asp Leu Tyr Cys Glu Pro Pro Glu Val Gln Pro
    130   135   140

Pro Pro Lys Arg Arg Gln Lys Arg Asp Thr Thr His Asn Leu Pro Glu
145 150 155 160

Phe Ile Val Lys Phe Gly Ser Arg Glu Trp Val Leu Gly Arg Val Glu
165 170 175

Tyr Asp Thr Arg Val Ser Asp Val Pro Leu Ser Leu Ile Leu Pro Leu
180 185 190

Val Ile Val Pro Met Val Val Val Ile Ala Val Ser Val Tyr Cys Tyr
195 200 205

Trp Arg Lys Ser Gln Gln Ala Glu Arg Glu Tyr Glu Lys Ile Lys Ser
210 215 220

Gln Leu Glu Gly Leu Glu Glu Ser Val Arg Asp Arg Cys Lys Lys Glu
225 230 235 240

Phe Thr Asp Leu Met Ile Glu Met Glu Asp Gln Thr Asn Asp Val His
245 250 255

Glu Ala Gly Ile Pro Val Leu Asp Tyr Lys Thr Tyr Thr Asp Arg Val
260 265 270

Phe Phe Leu Pro Ser Lys Asp Gly Asp Lys Asp Val Met Ile Thr Gly
275 280 285

Lys Leu Asp Ile Pro Glu Pro Arg Arg Pro Val Val Glu Gln Ala Leu
290 295 300

Tyr Gln Phe Ser Asn Leu Leu Asn Ser Lys Ser Phe Leu Ile Asn Phe
305 310 315 320

Ile His Thr Leu Glu Asn Gln Arg Glu Phe Ser Ala Arg Ala Lys Val
325 330 335

Tyr Phe Ala Ser Leu Leu Thr Val Ala Leu His Gly Lys Leu Glu Tyr
340 345 350

Tyr Thr Asp Ile Met His Thr Leu Phe Leu Glu Leu Leu Glu Gln Tyr
355 360 365

Val Val Ala Lys Asn Pro Lys Leu Met Leu Arg Arg Ser Glu Thr Val
370 375 380

Val Glu Arg Met Leu Ser Asn Trp Met Ser Ile Leu Xaa Pro Ile
385 390 395

<210> 1623

<211> 189
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (61)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (154)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1623
```
Ile Tyr Asp Phe Arg Thr Gly Met Arg Leu Lys Lys Glu Glu Lys Ser
  1               5                  10                  15

Arg Gln Glu Leu Glu Lys Leu Lys Arg Lys Leu Glu Gly Asp Ala Ser
             20                  25                  30

Asp Phe His Glu Gln Ile Ala Asp Leu Gln Ala Gln Ile Ala Glu Leu
         35                  40                  45

Lys Met Gln Leu Ala Lys Lys Glu Glu Glu Leu Gln Xaa Ala Leu Ala
     50                  55                  60

Arg Leu Asp Asp Glu Ile Leu Gln Lys Asn Asn Ala Leu Lys Lys Ile
 65                  70                  75                  80

Arg Glu Leu Glu Gly His Ile Ser Asp Leu Gln Glu Asp Leu Asp Ser
                 85                  90                  95

Glu Arg Ala Ala Arg Asn Lys Ala Glu Lys Gln Lys Arg Asp Leu Gly
            100                 105                 110

Glu Glu Leu Glu Ala Leu Lys Thr Glu Leu Glu Asp Thr Leu Asp Ser
        115                 120                 125

Thr Ala Thr Gln Gln Glu Leu Arg Ala Lys Arg Glu Gln Glu Val Thr
    130                 135                 140

Val Leu Lys Lys Ala Leu Asp Glu Glu Xaa Arg Ser His Glu Ala Gln
145                 150                 155                 160

Val Gln Glu Met Arg Gln Lys His Ala Gln Ala Val Glu Glu Leu Lys
                165                 170                 175

Gln Arg Ala Gly His Arg Ala His Thr Gly Pro Glu Glu
            180                 185
```

<210> 1624
<211> 276
<212> PRT
<213> Homo sapiens

<400> 1624
Leu Ile Ser Pro Val Trp Gly Asn Ile Gln Arg Ser Arg Ser Val Pro
1 5 10 15

Leu Phe Pro Ser Gly Leu Val Leu Gly Gly Ile Trp Ala Arg Gly Pro
20 25 30

Leu Leu Ala Leu Leu Ala Ser Phe Asn Ile Ile Ser Val Leu Asn Ala
35 40 45

Glu Cys Tyr Leu Lys Gln Ile Leu His Pro Thr Ser His Phe Thr Val
50 55 60

Ser Glu Thr Pro Pro Leu Ser Gly Asn Asp Thr Asp Ser Leu Ser Cys
65 70 75 80

Asp Ser Gly Ser Ser Ala Thr Ser Thr Pro Cys Val Ser Arg Leu Val
85 90 95

Thr Gly His His Leu Trp Ala Ser Lys Asn Gly Arg His Val Leu Gly
100 105 110

Leu Ile Glu Asp Tyr Glu Ala Leu Leu Lys Gln Ile Ser Gln Gly Gln
115 120 125

Arg Leu Leu Ala Glu Met Asp Ile Gln Thr Gln Glu Ala Pro Ser Ser
130 135 140

Thr Ser Gln Glu Leu Gly Thr Lys Gly Pro His Pro Ala Pro Leu Ser
145 150 155 160

Lys Phe Val Ser Ser Val Ser Thr Ala Lys Leu Thr Leu Glu Glu Ala
165 170 175

Tyr Arg Arg Leu Lys Leu Leu Trp Arg Val Ser Leu Pro Glu Asp Gly
180 185 190

Gln Cys Pro Leu His Cys Glu Gln Ile Gly Glu Met Lys Ala Glu Val
195 200 205

Thr Lys Leu His Lys Lys Leu Phe Glu Gln Glu Lys Lys Leu Gln Asn
210 215 220

Thr Met Lys Leu Leu Gln Leu Ser Lys Arg Gln Glu Lys Val Ile Phe

225 230 235 240

Asp Gln Leu Val Val Thr His Lys Ile Leu Arg Lys Ala Arg Gly Asn
245 250 255

Leu Glu Leu Arg Pro Gly Gly Ala His Pro Gly Thr Cys Ser Pro Ser
260 265 270

Arg Pro Gly Ser
275

<210> 1625
<211> 133
<212> PRT
<213> Homo sapiens

<400> 1625
Gln Ser Ala Val Gly Asn Thr Ala Thr Thr Leu Pro Trp Gln Gly Pro
1 5 10 15

Glu Ser Ile Ser Gly Gly Ala Ala His Val Cys Met Cys Cys Val Ser
20 25 30

Glu His Thr Arg Val His Thr His Thr His Val His Thr His Ala Leu
35 40 45

Ser Pro Leu Arg Gly Leu Glu Val Trp Leu Ser Pro Trp Gly Lys Val
50 55 60

Ser Ser Phe Ile Ser Leu Leu Gln Val Gly Val Pro Gly Val Arg Cys
65 70 75 80

Arg Gly His Ile Ala Gly Cys Pro Leu Phe Val Ala Pro Ile Lys Gly
85 90 95

Pro His Leu Val Asp Thr Trp Leu Ser Val Trp Ser Leu Pro Gln Pro
100 105 110

Val Leu Val Thr Ile Thr Gly Leu Ala Phe Val Thr Met Met Thr Pro
115 120 125

Ala Cys Leu Ile Phe
130

<210> 1626
<211> 677
<212> PRT

<213> Homo sapiens

<220>
<221> SITE
<222> (11)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (339)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (538)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (544)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1626
```
Ser Ser Gly Met Ala Leu Ala Val Ala Ala Xaa Ala Glu Ala Gln Ala
1               5                   10                  15

Ala Arg Pro Gln Trp Arg Leu Glu Pro Glu Arg Arg Arg Arg Arg His
            20                  25                  30

Pro Gly Glu Phe Lys Met Ala Ala Gly Gly Thr Gly Gly Leu Arg Glu
        35                  40                  45

Glu Gln Arg Tyr Gly Leu Ser Cys Gly Arg Leu Gly Gln Asp Asn Ile
    50                  55                  60

Thr Val Leu His Val Lys Leu Thr Glu Thr Ala Ile Arg Ala Leu Glu
65                  70                  75                  80

Thr Tyr Gln Ser His Lys Asn Leu Ile Pro Phe Arg Pro Ser Ile Gln
                85                  90                  95

Phe Gln Gly Leu His Gly Leu Val Lys Ile Pro Lys Asn Asp Pro Leu
            100                 105                 110

Asn Glu Val His Asn Phe Asn Phe Tyr Leu Ser Asn Val Gly Lys Asp
        115                 120                 125

Asn Pro Gln Gly Ser Phe Asp Cys Ile Gln Gln Thr Phe Ser Ser Ser
    130                 135                 140

Gly Ala Ser Gln Leu Asn Cys Leu Gly Phe Ile Gln Asp Lys Ile Thr
```

145 150 155 160

Val Cys Ala Thr Asn Asp Ser Tyr Gln Met Thr Arg Glu Arg Met Thr
165 170 175

Gln Ala Glu Glu Glu Ser Arg Asn Arg Ser Thr Lys Val Ile Lys Pro
180 185 190

Gly Gly Pro Tyr Val Gly Lys Arg Val Gln Ile Arg Lys Ala Pro Gln
195 200 205

Ala Val Ser Asp Thr Val Pro Glu Arg Lys Arg Ser Thr Pro Met Asn
210 215 220

Pro Ala Asn Thr Ile Arg Lys Thr His Ser Ser Ser Thr Ile Ser Gln
225 230 235 240

Arg Pro Tyr Arg Asp Arg Val Ile His Leu Leu Ala Leu Lys Ala Tyr
245 250 255

Lys Lys Pro Glu Leu Leu Ala Arg Leu Gln Lys Asp Gly Val Asn Gln
260 265 270

Lys Asp Lys Asn Ser Leu Gly Ala Ile Leu Gln Gln Val Ala Asn Leu
275 280 285

Asn Ser Lys Asp Leu Ser Tyr Thr Leu Lys Asp Tyr Val Phe Lys Glu
290 295 300

Leu Gln Arg Asp Trp Pro Gly Tyr Ser Glu Ile Asp Arg Arg Ser Leu
305 310 315 320

Glu Ser Val Leu Ser Arg Lys Leu Asn Pro Ser Gln Asn Ala Thr Gly
325 330 335

Thr Ser Xaa Ser Glu Ser Pro Val Cys Ser Ser Arg Asp Ala Val Ser
340 345 350

Ser Pro Gln Lys Arg Leu Leu Asp Ser Glu Phe Ile Asp Pro Leu Met
355 360 365

Asn Lys Lys Ala Arg Ile Ser His Leu Thr Asn Arg Val Pro Pro Thr
370 375 380

Leu Asn Gly His Leu Asn Pro Thr Ser Glu Lys Ser Ala Ala Gly Leu
385 390 395 400

Pro Leu Pro Pro Ala Ala Ala Ala Ile Pro Thr Pro Pro Pro Leu Pro
405 410 415

Ser Thr Tyr Leu Pro Ile Ser His Pro Pro Gln Ile Val Asn Ser Asn

420 425 430

Ser Asn Ser Pro Ser Thr Pro Glu Gly Arg Gly Thr Gln Asp Leu Pro
435 440 445

Val Asp Ser Phe Ser Gln Asn Asp Ser Ile Tyr Glu Asp Gln Gln Asp
450 455 460

Lys Tyr Thr Ser Arg Thr Ser Leu Glu Thr Leu Pro Pro Gly Ser Val
465 470 475 480

Leu Leu Lys Cys Pro Lys Pro Met Glu Glu Asn His Ser Met Ser His
485 490 495

Lys Lys Ser Lys Lys Lys Ser Lys Lys His Lys Glu Lys Asp Gln Ile
500 505 510

Lys Lys His Asp Ile Glu Thr Ile Glu Glu Lys Glu Glu Asp Leu Lys
515 520 525

Arg Glu Glu Glu Ile Ala Lys Leu Asn Xaa Ser Ser Pro Asn Ser Xaa
530 535 540

Gly Gly Val Lys Glu Asp Cys Thr Ala Ser Met Glu Pro Ser Ala Ile
545 550 555 560

Glu Leu Pro Asp Tyr Leu Ile Lys Tyr Ile Ala Ile Val Ser Tyr Glu
565 570 575

Gln Arg Gln Asn Tyr Lys Asp Asp Phe Asn Ala Glu Tyr Asp Glu Tyr
580 585 590

Arg Ala Leu His Ala Arg Met Glu Thr Val Ala Arg Arg Phe Ile Lys
595 600 605

Leu Asp Ala Gln Arg Lys Arg Leu Ser Pro Gly Ser Lys Glu Tyr Gln
610 615 620

Asn Val His Glu Glu Val Leu Gln Glu Tyr Gln Lys Ile Lys Gln Ser
625 630 635 640

Ser Pro Asn Tyr His Glu Glu Lys Tyr Arg Cys Glu Tyr Leu His Asn
645 650 655

Lys Leu Ala His Ile Lys Arg Leu Ile Gly Glu Phe Asp Gln Gln Gln
660 665 670

Ala Glu Ser Trp Ser
675

<210> 1627
<211> 124
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (58)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (108)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (123)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1627
Gly Pro Trp Gly Gly Phe Glu Leu Ser Arg Leu Cys Pro Tyr Arg Leu
1 5 10 15

Pro Arg His Thr Arg Ser Val Phe Pro Leu Ser Pro Pro Ser Arg Ala
20 25 30

Gly Pro Ser Gly Ile Glu Gly Ala Gly Ser Pro Arg Thr Arg Ala Gln
35 40 45

Lys Ser Pro Thr Gly Ser Cys Ile Phe Xaa Arg Thr Ile Pro Gly Ala
50 55 60

Leu Arg Gly Val Ser Gly Glu Thr Gly His Arg Gln Ser His Gly Pro
65 70 75 80

Pro Pro Lys Ala Gln Ala Pro Pro Ala Pro Pro His Pro Ser Ser Leu
85 90 95

Thr His Ala Ala Ser Pro Pro Pro Cys Arg Cys Xaa Gly Gln Ser Pro
100 105 110

Val Arg Pro Lys Thr Gly Leu Val Pro Gly Xaa Ala
115 120

<210> 1628
<211> 277
<212> PRT

<213> Homo sapiens

<220>
<221> SITE
<222> (176)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1628
Thr His Val Val Arg His Ala Tyr Arg Ser Tyr Phe Thr Phe Ile Gly
1   5   10   15

Arg Val Ala Gly Leu Ala Val Phe His Gly Lys Leu Leu Asp Gly Phe
            20   25   30

Phe Ile Arg Pro Phe Tyr Lys Met Met Leu Gly Lys Gln Ile Thr Leu
        35   40   45

Asn Asp Met Glu Ser Val Asp Ser Glu Tyr Tyr Asn Ser Leu Lys Trp
    50   55   60

Ile Leu Glu Asn Asp Pro Thr Glu Leu Asp Leu Met Phe Cys Ile Asp
65   70   75   80

Glu Glu Asn Phe Gly Gln Thr Tyr Gln Val Asp Leu Lys Pro Asn Gly
                85   90   95

Ser Glu Ile Met Val Thr Asn Glu Asn Lys Arg Glu Tyr Ile Asp Leu
            100   105   110

Val Ile Gln Trp Arg Phe Val Asn Arg Val Gln Lys Gln Met Asn Ala
        115   120   125

Phe Leu Glu Gly Phe Thr Glu Leu Leu Pro Ile Asp Leu Ile Lys Ile
    130   135   140

Phe Asp Glu Asn Glu Leu Glu Leu Leu Met Cys Gly Leu Gly Asp Val
145   150   155   160

Asp Val Asn Asp Trp Arg Gln His Ser Ile Tyr Lys Asn Gly Tyr Xaa
                165   170   175

Pro Asn His Pro Val Ile Gln Trp Phe Trp Lys Ala Val Leu Leu Met
            180   185   190

Asp Ala Glu Lys Arg Ile Arg Leu Leu Gln Phe Val Thr Gly Thr Ser
        195   200   205

Arg Val Pro Met Asn Gly Phe Ala Glu Leu Tyr Gly Ser Asn Gly Pro
    210   215   220

Gln Leu Phe Thr Ile Glu Gln Trp Gly Ser Pro Glu Lys Leu Pro Arg

225 230 235 240

Ala His Thr Cys Phe Asn Arg Leu Asp Leu Pro Pro Tyr Glu Thr Phe
245 250 255

Glu Asp Leu Arg Glu Lys Leu Leu Met Ala Val Glu Asn Ala Gln Gly
260 265 270

Phe Glu Gly Val Asp
275

<210> 1629
<211> 135
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (7)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1629
Gly Ala Val Gly Gly Arg Xaa Gly Gly Arg Tyr Ala Gly Arg His Val
1 5 10 15

Ser Arg Val Arg Ala Leu Tyr Lys Arg Val Leu Gln Leu His Arg Val
20 25 30

Leu Pro Pro Asp Leu Lys Ser Leu Gly Asp Gln Tyr Val Lys Asp Glu
35 40 45

Phe Arg Arg His Lys Thr Val Gly Ser Asp Glu Ala Gln Arg Phe Leu
50 55 60

Gln Glu Trp Glu Val Tyr Ala Thr Ala Leu Leu Gln Gln Ala Asn Glu
65 70 75 80

Asn Arg Gln Asn Ser Thr Gly Lys Ala Cys Phe Gly Thr Phe Leu Pro
85 90 95

Glu Glu Lys Leu Asn Asp Phe Arg Asp Glu Gln Ile Gly Gln Leu Gln
100 105 110

Glu Leu Met Gln Glu Ala Thr Lys Pro Asn Arg Gln Phe Ser Ile Ser
115 120 125

Glu Ser Met Lys Pro Lys Phe
130 135

<210> 1630
<211> 233
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (32)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (33)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<222> (195)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (222)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (223)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (227)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (231)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1630
Met Cys Pro Ser Cys Ser Pro Cys Gly Met Asp Trp Val Val Glu Thr
1 5 10 15

Met Pro Gln Gly Val Cys Gly Met Ser Pro Ser Val Trp Ser Val Xaa
20 25 30

Xaa Glu Thr Val Arg Gly Leu Leu Leu His His Pro Thr Leu Pro Asn
35 40 45

Pro Tyr Thr Met Ala Val Ala Ala Arg Val Thr Ala Ala Thr Thr Val
50 55 60

Thr His Ile Thr Ala Phe Asp Pro Asp Ser Thr Gly Gln Gln Val Trp
65 70 75 80

Gln Asp Leu Leu Gln Asp Gly Gln Leu Asp Ser Pro Thr Gly Gln Ser
85 90 95

Thr Pro Thr Gln Lys Gly Val Gly Ile Ala Gly Ala Val Cys Val Ser
100 105 110

Ser Lys Leu Arg Pro Arg Gly Gln Cys Arg Leu Glu Phe Ser Leu Ala
115 120 125

Trp Asp Met Pro Arg Ile Met Phe Gly Ala Lys Gly Gln Val His Tyr
130 135 140

Arg Arg Tyr Thr Arg Phe Phe Gly Gln Asp Gly Asp Ala Ala Pro Ala
145 150 155 160

Leu Ser His Tyr Ala Leu Cys Arg Tyr Ala Glu Trp Glu Glu Arg Ile
165 170 175

Ser Ala Trp Gln Ser Pro Val Leu Asp Asp Arg Ser Leu Pro Ala Trp
180 185 190

Tyr Lys Xaa Ala Leu Phe Asn Glu Leu Tyr Phe Leu Ala Asp Gly Gly
195 200 205

Thr Val Trp Leu Glu Val Leu Glu Asp Ile Gln Asp Lys Xaa Xaa Phe
210 215 220

Tyr Pro Xaa Arg Gly Gln Xaa Ala Tyr
225 230

<210> 1631
<211> 153
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (9)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE

<222> (118)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1631
Trp Gly Pro Arg Leu Pro Pro Pro Xaa Lys Lys Ala Leu Leu Ala Leu
1   5   10   15

Lys Lys Gln Ser Ser Ser Ser Thr Thr Ser Gln Gly Gly Val Lys Arg
            20   25   30

Ser Leu Ser Glu Gln Pro Val Met Asp Thr Ala Thr Ala Thr Glu Gln
        35   40   45

Ala Lys Gln Leu Val Lys Ser Gly Ala Ile Ser Ala Ile Lys Ala Glu
    50   55   60

Thr Lys Asn Ser Gly Phe Lys Arg Ser Arg Thr Leu Glu Gly Lys Leu
65   70   75   80

Lys Asp Pro Glu Lys Gly Pro Val Pro Thr Phe Gln Pro Phe Gln Arg
                85   90   95

Ser Ile Ser Ala Asp Asp Asp Leu Gln Glu Ser Ser Arg Arg Pro Gln
            100   105   110

Arg Lys Ser Leu Tyr Xaa Ser Ser Leu Ala Val Gln Asn Ser Pro Lys
        115   120   125

Gly Cys His Arg Asp Lys Arg Thr Gln Ile Val Tyr Ser Asp Asp Val
    130   135   140

Tyr Lys Glu Asn Leu Val Asp Gly Phe
145   150

<210> 1632
<211> 224
<212> PRT
<213> Homo sapiens

<400> 1632
Pro Thr Arg Cys Gly Ala Ser Gly Ser Arg Pro Pro Ser Gly Ser Asp
1   5   10   15

Pro Ala Asn Gly Phe Gly Tyr Ile Phe Met Leu Gly Phe Ile Thr Arg
            20   25   30

Pro Pro His Arg Phe Leu Ser Leu Leu Cys Pro Gly Leu Arg Ile Pro
        35   40   45

Gln Leu Ser Val Leu Cys Ala Gln Pro Arg Pro Arg Ala Met Ala Ile
50 55 60

Ser Ser Ser Ser Cys Glu Leu Pro Leu Val Ala Val Cys Gln Val Thr
65 70 75 80

Ser Thr Pro Asp Lys Gln Gln Asn Phe Lys Thr Cys Ala Glu Leu Val
85 90 95

Arg Glu Ala Ala Arg Leu Gly Ala Cys Leu Ala Phe Leu Pro Glu Ala
100 105 110

Phe Asp Phe Ile Ala Arg Asp Pro Ala Glu Thr Leu His Leu Ser Glu
115 120 125

Pro Leu Gly Gly Lys Leu Leu Glu Glu Tyr Thr Gln Leu Ala Arg Glu
130 135 140

Cys Gly Leu Trp Leu Ser Leu Gly Gly Phe His Glu Arg Gly Gln Asp
145 150 155 160

Trp Glu Gln Thr Gln Lys Ile Tyr Asn Cys His Val Leu Leu Asn Ser
165 170 175

Lys Gly Ala Val Val Ala Thr Tyr Arg Lys Thr His Leu Cys Asp Val
180 185 190

Glu Ile Pro Gly Gln Gly Leu Cys Val Lys Ala Thr Leu Pro Cys Leu
195 200 205

Gly Pro Val Leu Ser His Leu Ser Ala His Gln Gln Ala Arg Leu Val
210 215 220

<210> 1633
<211> 668
<212> PRT
<213> Homo sapiens

<400> 1633
Thr Ile Asn Gly Val Ile Leu Ile Ser Val Phe Phe Ser Phe Phe Phe
1 5 10 15

Leu His Pro Met Leu Ser Val Val Val Cys Val Val Gly Leu Ser Pro
20 25 30

Gly Gln Tyr Phe Tyr Phe Gln Glu Val Phe Pro Val Leu Ala Ala Lys

35 40 45

His Cys Ile Met Gln Ala Asn Ala Glu Tyr His Gln Ser Ile Leu Ala
50 55 60

Lys Gln Gln Lys Lys Phe Gly Glu Glu Ile Ala Arg Leu Gln His Ala
65 70 75 80

Ala Glu Leu Ile Lys Thr Val Ala Ser Arg Tyr Asp Glu Tyr Val Asn
85 90 95

Val Lys Asp Phe Ser Asp Lys Ile Asn Arg Ala Leu Ala Ala Ala Lys
100 105 110

Lys Asp Asn Asp Phe Ile Tyr His Asp Arg Val Pro Asp Leu Lys Asp
115 120 125

Leu Asp Pro Ile Gly Lys Ala Thr Leu Val Lys Ser Thr Pro Val Asn
130 135 140

Val Pro Ile Ser Gln Lys Phe Thr Asp Leu Phe Glu Lys Met Val Pro
145 150 155 160

Val Ser Val Gln Gln Ser Leu Ala Ala Tyr Asn Gln Arg Lys Ala Asp
165 170 175

Leu Val Asn Arg Ser Ile Ala Gln Met Arg Glu Ala Thr Thr Leu Ala
180 185 190

Asn Gly Val Leu Ala Ser Leu Asn Leu Pro Ala Ala Ile Glu Asp Val
195 200 205

Ser Gly Asp Thr Val Pro Gln Ser Ile Leu Thr Lys Ser Arg Ser Val
210 215 220

Ile Glu Gln Gly Gly Ile Gln Thr Val Asp Gln Leu Ile Lys Glu Leu
225 230 235 240

Pro Glu Leu Leu Gln Arg Asn Arg Glu Ile Leu Asp Glu Ser Leu Arg
245 250 255

Leu Leu Asp Glu Glu Glu Ala Thr Asp Asn Asp Leu Arg Ala Lys Phe
260 265 270

Lys Glu Arg Trp Gln Arg Thr Pro Ser Asn Glu Leu Tyr Lys Pro Leu
275 280 285

Arg Ala Glu Gly Thr Asn Phe Arg Thr Val Leu Asp Lys Ala Val Gln
290 295 300

Ala Asp Gly Gln Val Lys Glu Cys Tyr Gln Ser His Arg Asp Thr Ile

305 310 315 320

Val Leu Leu Cys Lys Pro Glu Pro Glu Leu Asn Ala Ala Ile Pro Ser
325 330 335

Ala Asn Pro Ala Lys Thr Met Gln Gly Ser Glu Val Val Asn Val Leu
340 345 350

Lys Ser Leu Leu Ser Asn Leu Asp Glu Val Lys Lys Glu Arg Glu Gly
355 360 365

Leu Glu Asn Asp Leu Lys Ser Val Asn Phe Asp Met Thr Ser Lys Phe
370 375 380

Leu Thr Ala Leu Ala Gln Asp Gly Val Ile Asn Glu Glu Ala Leu Ser
385 390 395 400

Val Thr Glu Leu Asp Arg Val Tyr Gly Gly Leu Thr Thr Lys Val Gln
405 410 415

Glu Ser Leu Lys Lys Gln Glu Gly Leu Leu Lys Asn Ile Gln Val Ser
420 425 430

His Gln Glu Phe Ser Lys Met Lys Gln Ser Asn Asn Glu Ala Asn Leu
435 440 445

Arg Glu Glu Val Leu Lys Asn Leu Ala Thr Ala Tyr Asp Asn Phe Val
450 455 460

Glu Leu Val Ala Asn Leu Lys Glu Gly Thr Lys Phe Tyr Asn Glu Leu
465 470 475 480

Thr Glu Ile Leu Val Arg Phe Gln Asn Lys Cys Ser Asp Ile Val Phe
485 490 495

Ala Arg Lys Thr Glu Arg Asp Glu Leu Leu Lys Asp Leu Gln Gln Ser
500 505 510

Ile Ala Arg Glu Pro Ser Ala Pro Ser Ile Pro Thr Pro Ala Tyr Gln
515 520 525

Ser Ser Pro Ala Gly Gly His Ala Pro Thr Pro Pro Thr Pro Ala Pro
530 535 540

Arg Thr Met Pro Pro Thr Lys Pro Gln Pro Pro Ala Arg Pro Pro Pro
545 550 555 560

Pro Val Leu Pro Ala Asn Arg Ala Pro Ser Ala Thr Ala Pro Ser Pro
565 570 575

Val Gly Ala Gly Thr Ala Ala Pro Ala Pro Ser Gln Thr Pro Gly Ser

580 585 590

Ala Pro Pro Pro Gln Ala Gln Gly Pro Pro Tyr Pro Thr Tyr Pro Gly
595 600 605

Tyr Pro Gly Tyr Cys Gln Met Pro Met Pro Met Gly Tyr Asn Pro Tyr
610 615 620

Ala Tyr Gly Gln Tyr Asn Met Pro Tyr Pro Pro Val Tyr His Gln Ser
625 630 635 640

Pro Gly Gln Ala Pro Tyr Pro Gly Pro Gln Gln Pro Ser Tyr Pro Phe
645 650 655

Pro Gln Pro Pro Gln Gln Ser Tyr Tyr Pro Gln Gln
660 665

<210> 1634
<211> 99
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (64)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (75)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (78)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (81)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1634
Gly Glu Ala Ala Lys Met Ser Ser Glu Pro Pro Pro Pro Tyr Pro Gly
1 5 10 15

Gly Pro Thr Ala Pro Leu Leu Glu Glu Lys Ser Gly Ala Pro Pro Thr
20 25 30

Pro Gly Arg Ser Ser Pro Ala Val Met Gln Pro Pro Pro Gly Met Pro
35 40 45

Leu Pro Pro Ala Asp Ile Gly Pro Pro Pro Tyr Glu Pro Pro Gly Xaa
50 55 60

Pro Met Pro Gln Pro Gly Phe Ile Pro Pro Xaa Met Ser Xaa Asp Gly
65 70 75 80

Xaa Tyr Met Pro Pro Gly Phe Leu Pro Phe Phe Arg Gly Pro His Pro
85 90 95

Pro Leu Gly

<210> 1635
<211> 74
<212> PRT
<213> Homo sapiens

<400> 1635
Gly Glu Ala Ala Phe Cys Pro Ser Pro His Ser His Leu Ile Tyr Leu
1 5 10 15

Ile Gln Ser Gln Leu Leu Lys Phe Gly Lys Asp Gln Ile Ala Leu Gln
20 25 30

Phe Phe Ser Leu Cys Ser Ile Leu Lys Ser Trp Lys Ile Leu Trp Asn
35 40 45

Ser Ser Val Tyr Arg Ala Gln Val Lys Ala Leu Ser Lys Val Tyr Leu
50 55 60

Phe Ile Tyr Tyr Pro Lys Asn Ala Leu Pro
65 70

<210> 1636
<211> 67
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (48)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1636

Arg His Arg Ser Val Ser Thr Pro Arg Ala Gly Gly Ile Val Trp Phe
1 5 10 15

His Glu Gly Leu Lys Ser Val Ile Pro Lys Val Gly Leu Gln Ala Ala
20 25 30

Ala Pro Ser Ile Cys Val Phe Leu Ser Gly Thr Val Gly Leu Tyr Xaa
35 40 45

Arg Leu Thr Cys Phe Gly Ser Arg Gly Ile Ile Leu Gly Phe Gly Lys
50 55 60

Thr His Phe
65

<210> 1637
<211> 64
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (21)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1637
Thr Phe Ile Tyr Val Gly Leu Tyr Leu Thr Ile Cys Asn Phe Lys Val
1 5 10 15

Met Leu Gly Gln Xaa Asn Val Ser Ala Ser Arg Ile Ala Ile Lys Tyr
20 25 30

His Thr Lys Phe Gly Gly Arg Thr Asp Leu Cys Tyr Lys Glu Met Glu
35 40 45

Lys Ser Ser Leu Cys His Gly Asp Glu Lys Pro Ala Ser His Ser Asn
50 55 60

<210> 1638
<211> 93
<212> PRT
<213> Homo sapiens

<220>

<221> SITE
<222> (90)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1638
Gln Arg Gly Asp Ser Ala Asp Thr Ala Ser Leu Arg Phe Asn Thr Pro
1 5 10 15

Ser Phe Asp Leu Ser Cys Pro His Tyr Pro Arg Lys Ile Gln Ser Ser
20 25 30

Phe Gln Ser Ile Leu Ile Asn Pro Leu Asp Pro Lys Phe Arg Glu Val
35 40 45

Pro Leu Pro Ser Ser Leu Leu Pro Gly Pro Thr Glu Glu His Pro Thr
50 55 60

Thr Leu His Gln Leu Leu Lys Thr His Lys Gly Lys Ile Pro Thr Gly
65 70 75 80

Pro Cys Gln Glu Val Val Glu Leu Pro Xaa Arg Phe His
85 90

<210> 1639
<211> 222
<212> PRT
<213> Homo sapiens

<400> 1639
His Glu Leu Asn Cys Lys Asp Ala Val Ser Arg Lys Arg Ser His Ser
1 5 10 15

Ala Ser Glu Lys Ser Gly Thr Gly Thr Ser Ile Ser Lys Arg Leu Asn
20 25 30

Met Asn Pro Gln Ile Arg Asn Pro Met Lys Ala Met Tyr Pro Gly Thr
35 40 45

Phe Tyr Phe Gln Phe Lys Asn Leu Trp Glu Ala Asn Asp Arg Asn Glu
50 55 60

Thr Trp Leu Cys Phe Thr Val Glu Gly Ile Lys Arg Arg Ser Val Val
65 70 75 80

Ser Trp Lys Thr Gly Val Phe Arg Asn Gln Val Asp Ser Glu Thr His
85 90 95

Cys His Ala Glu Arg Cys Phe Leu Ser Trp Phe Cys Asp Asp Ile Leu
100 105 110

Ser Pro Asn Thr Lys Tyr Gln Val Thr Trp Tyr Thr Ser Trp Ser Pro
115 120 125

Cys Pro Asp Cys Ala Gly Glu Val Ala Glu Phe Leu Ala Arg His Ser
130 135 140

Asn Val Asn Leu Thr Ile Phe Thr Ala Arg Leu Tyr Tyr Phe Gln Tyr
145 150 155 160

Pro Cys Tyr Gln Glu Gly Leu Arg Ser Leu Ser Gln Glu Gly Val Ala
165 170 175

Val Glu Ile Met Asp Tyr Glu Asp Phe Lys Tyr Cys Trp Glu Asn Phe
180 185 190

Val Tyr Asn Asp Asn Glu Pro Phe Lys Pro Trp Lys Gly Leu Lys Thr
195 200 205

Asn Phe Arg Leu Leu Lys Arg Arg Leu Arg Glu Ser Leu Gln
210 215 220

<210> 1640
<211> 436
<212> PRT
<213> Homo sapiens

<400> 1640
Gly Leu Lys Arg Val Ser Ala Thr Ala Ala His Arg Asn Ala Leu Gln
1 5 10 15

Asn Pro Lys Gln Gly Gly Thr Gln Leu Lys Thr Glu Lys Ile His Met
20 25 30

Phe Leu Leu Ala Pro Val Ala Thr Gly Ile Asn Ser His Asn Asp Arg
35 40 45

Gly Arg Gly Ile Gln Gly Thr Ile Asn Glu Gln Cys Ala Ser Ser Leu
50 55 60

Lys Ile Arg Ala Ser His Gly Thr Lys Met Met Thr Pro Glu Val Leu
65 70 75 80

Ala Glu Ala Tyr Gly Lys Lys Glu Trp Lys His Phe Leu Ser Asp Thr
85 90 95

Gly Met Ala Cys Arg Ser Gly Lys Tyr Tyr Phe Tyr Asp Asn Tyr Phe
100 105 110

Asp Leu Pro Gly Ala Leu Leu Cys Ala Arg Val Val Asp Tyr Leu Thr
115 120 125

Lys Leu Asn Asn Gly Gln Lys Thr Phe Asp Phe Trp Lys Asp Ile Val
130 135 140

Ala Ala Ile Gln His Asn Tyr Lys Met Ser Ala Phe Lys Glu Asn Cys
145 150 155 160

Gly Ile Tyr Phe Pro Glu Ile Lys Arg Asp Pro Gly Arg Tyr Leu His
165 170 175

Ser Cys Pro Glu Ser Val Lys Lys Trp Leu Arg Gln Leu Lys Asn Ala
180 185 190

Gly Lys Ile Leu Leu Leu Ile Thr Ser Ser His Ser Asp Tyr Cys Arg
195 200 205

Leu Leu Cys Glu Tyr Ile Leu Gly Asn Asp Phe Thr Asp Leu Phe Asp
210 215 220

Ile Val Ile Thr Asn Ala Leu Lys Pro Gly Phe Phe Ser His Leu Pro
225 230 235 240

Ser Gln Arg Pro Phe Arg Thr Leu Glu Asn Asp Glu Glu Gln Glu Ala
245 250 255

Leu Pro Ser Leu Asp Lys Pro Gly Trp Tyr Ser Gln Gly Asn Ala Val
260 265 270

His Leu Tyr Glu Leu Leu Lys Lys Met Thr Gly Lys Pro Glu Pro Lys
275 280 285

Val Val Tyr Phe Gly Asp Ser Met His Ser Asp Ile Phe Pro Ala Arg
290 295 300

His Tyr Ser Asn Trp Glu Thr Val Leu Ile Leu Glu Glu Leu Arg Gly
305 310 315 320

Asp Glu Gly Thr Arg Ser Gln Arg Pro Glu Glu Ser Glu Pro Leu Glu
325 330 335

Lys Lys Gly Lys Tyr Glu Gly Pro Lys Ala Lys Pro Leu Asn Thr Ser
340 345 350

Ser Lys Lys Trp Gly Ser Phe Phe Ile Asp Ser Val Leu Gly Leu Glu
355 360 365

Asn Thr Glu Asp Ser Leu Val Tyr Thr Trp Ser Cys Lys Arg Ile Ser
370 375 380

Thr Tyr Ser Thr Ile Ala Ile Pro Ser Ile Glu Ala Ile Ala Glu Leu
385 390 395 400

Pro Leu Asp Tyr Lys Phe Thr Arg Phe Ser Ser Ser Asn Ser Lys Thr
405 410 415

Ala Gly Tyr Tyr Pro Asn Pro Pro Leu Val Leu Ser Ser Asp Glu Thr
420 425 430

Leu Ile Ser Lys
435

<210> 1641
<211> 81
<212> PRT
<213> Homo sapiens

<400> 1641
Pro His Ser Leu Leu Phe Phe Leu Leu Gln Thr Leu Arg Gln Cys Ser
1 5 10 15

Asn Thr Ser Phe Thr His Pro Pro Asn Asn Ser Val His Ser Val Phe
20 25 30

Phe Pro Leu Ser Gly Val Ser Ser Met Leu Val Arg Leu Gly Glu His
35 40 45

Leu Asp Leu Phe His Arg Lys Gly Cys Phe Gln Pro Val Ser Val Met
50 55 60

Leu Val Leu Leu Gln Gln Ser Lys Ser Lys Gly Phe Arg Ser Leu Phe
65 70 75 80

Asp

<210> 1642
<211> 86
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (66)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE
<222> (73)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1642
Thr Glu Lys Lys Lys Lys Lys Gly Gly Arg Ser Arg Gly Ser Lys Leu
1 5 10 15

Thr Tyr Ala Cys Met Arg Arg His Ser Ser Ser Ile Val Ser Pro Lys
20 25 30

Phe Asn Ser Leu Ala Val Val Leu Gln Arg Arg Asp Trp Glu Asn Pro
35 40 45

Gly Val Thr Gln Leu Asn Arg Leu Ala Ala His Pro Pro Phe Ala Ser
50 55 60

Trp Xaa Asn Ser Glu Glu Ala Arg Xaa Gly Ser Pro Phe Pro His Asn
65 70 75 80

Cys Ala Leu Glu Trp Ala
85

<210> 1643
<211> 118
<212> PRT
<213> Homo sapiens

<400> 1643
His Cys Val Glu Gly Thr Ser Leu Ser Leu Pro Cys Leu Thr Val Ser
1 5 10 15

Gly Ser Phe Ser Pro Cys Val Ser Trp Cys Ser Gln Pro His Gln Ser
20 25 30

Pro Cys Arg Glu Leu Thr Ala Phe Thr Leu Lys Ala Arg Val Thr Trp
35 40 45

Val Val Arg His His Leu Ser Pro Cys Pro His Leu Leu Val Trp Gly
50 55 60

Phe Ser Gly Glu Leu Thr Ala Val Ser Thr Pro Leu Ser Pro His Pro
65 70 75 80

Pro Arg Pro Ala Trp Gly Thr His Phe Leu Leu Gly Gly Ala Ser Met
85 90 95

Val Arg Gly Pro Ala Ser Leu His Thr Ala Arg Thr Ala Leu His Arg
100 105 110

Pro Thr Pro Tyr Asp Thr
115

<210> 1644
<211> 52
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (13)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (16)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (17)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1644
Arg Leu Ser Glu Ser Leu Ser Val Ser Ser Leu Gln Xaa Arg Ser Xaa
1 5 10 15

Xaa Val Lys Pro Leu Thr Ala Val Met Ser Glu Val Ile Pro Arg Thr
20 25 30

Trp Glu Thr Ala Val His Gly Trp Ile Leu Leu Thr Ser Ala Glu Phe
35 40 45

Cys Gln Val Thr
50

<210> 1645
<211> 346
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (35)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (83)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1645

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Pro Pro Ala Ser Thr Leu Pro Trp Asp Leu Met Lys Ser Arg Lys Asn
  1               5                  10                  15

Phe Lys Lys Trp Pro Leu Thr Leu Leu Pro Glu Arg Trp Leu Gln Ile
            20                  25                  30

Trp Gln Xaa Gly Thr Arg Ser Met Cys Ala Trp Met Ile Asp Ser Phe
        35                  40                  45

Gly Asn Glu Glu Gln Arg His Lys Phe Cys Pro Pro Leu Cys Thr Met
    50                  55                  60

Glu Lys Phe Ala Ser Tyr Cys Leu Thr Glu Pro Gly Ser Gly Ser Asp
65                  70                  75                  80

Ala Ala Xaa Leu Leu Thr Ser Ala Lys Lys Gln Gly Asp His Tyr Ile
                85                  90                  95

Leu Asn Gly Ser Lys Ala Phe Ile Ser Gly Ala Gly Glu Ser Asp Ile
            100                 105                 110

Tyr Val Val Met Cys Arg Thr Gly Gly Pro Gly Pro Lys Gly Ile Ser
        115                 120                 125

Cys Ile Val Val Glu Lys Gly Thr Pro Gly Leu Ser Phe Gly Lys Lys
    130                 135                 140

Glu Lys Lys Val Gly Trp Asn Ser Gln Pro Thr Arg Ala Val Ile Phe
145                 150                 155                 160

Glu Asp Cys Ala Val Pro Val Ala Asn Arg Ile Gly Ser Glu Gly Gln
                165                 170                 175

Gly Phe Leu Ile Ala Val Arg Gly Leu Asn Gly Gly Arg Ile Asn Ile
            180                 185                 190

Ala Ser Cys Ser Leu Gly Ala Ala His Ala Ser Val Ile Leu Thr Arg
        195                 200                 205

Asp His Leu Asn Val Arg Lys Gln Phe Gly Glu Pro Leu Ala Ser Asn
    210                 215                 220

Gln Tyr Leu Gln Phe Thr Leu Ala Asp Met Ala Thr Arg Leu Val Ala
225                 230                 235                 240
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Ala Arg Leu Met Val Arg Asn Ala Ala Val Ala Leu Gln Glu Glu Arg
245 250 255

Lys Asp Ala Val Ala Leu Cys Ser Met Ala Lys Leu Phe Ala Thr Asp
260 265 270

Glu Cys Phe Ala Ile Cys Asn Gln Ala Leu Gln Met His Gly Gly Tyr
275 280 285

Gly Tyr Leu Lys Asp Tyr Ala Val Gln Gln Tyr Val Arg Asp Ser Arg
290 295 300

Val His Gln Ile Leu Glu Glu Leu Phe Trp Gln Gly Pro Gly Val Gln
305 310 315 320

Ser Arg Ser Phe Ala Leu Phe Gly Gly Pro Gln Ile Pro Leu Leu Leu
325 330 335

Pro Phe Ser Ser Gly Asp Leu Arg Glu Gly
340 345

<210> 1646
<211> 201
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (6)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1646
Cys Asn Leu Ala Lys Xaa Val Ile Ser Ile Ser Phe Leu Lys Glu Glu
1 5 10 15

Glu Gln Glu Asp Glu Glu Glu Ile Asp Val Val Ser Val Glu Lys Arg
20 25 30

Gln Ala Pro Gly Lys Arg Ser Glu Ser Gly Ser Pro Ser Ala Gly Gly
35 40 45

His Ser Lys Pro Pro His Ser Pro Leu Val Leu Lys Arg Cys His Val
50 55 60

Ser Thr His Gln His Asn Tyr Ala Ala Pro Pro Ser Thr Arg Lys Asp
65 70 75 80

Tyr Pro Ala Ala Lys Arg Val Lys Leu Asp Ser Val Arg Val Leu Arg
85 90 95

Gln Ile Ser Asn Asn Arg Lys Cys Thr Ser Pro Arg Ser Ser Asp Thr
100 105 110

Glu Glu Asn Val Lys Arg Arg Thr His Asn Val Leu Glu Arg Gln Arg
115 120 125

Arg Asn Glu Leu Lys Arg Ser Phe Phe Ala Leu Arg Asp Gln Ile Pro
130 135 140

Glu Leu Glu Asn Asn Glu Lys Ala Pro Lys Val Val Ile Leu Lys Lys
145 150 155 160

Ala Thr Ala Tyr Ile Leu Ser Val Gln Ala Glu Glu Gln Lys Leu Ile
165 170 175

Ser Glu Glu Asp Leu Leu Arg Lys Arg Arg Glu Gln Leu Lys His Lys
180 185 190

Leu Glu Gln Leu Arg Asn Ser Cys Ala
195 200

<210> 1647
<211> 84
<212> PRT
<213> Homo sapiens

<400> 1647
Ser Ile Tyr Asp Ser Ser Lys Lys Asn His Leu Leu Tyr Ala Gly Asp
1 5 10 15

Met Phe Arg Asp Leu Ser Glu Lys Leu Ala Trp Phe Glu Gly Thr Gln
20 25 30

Tyr His Phe Asn Leu Leu Lys Ile Ser Val Phe Leu Leu Phe Phe Cys
35 40 45

Cys His Cys Gln Ser Ala Ile Phe Phe Thr Ile Leu Leu Lys Tyr Tyr
50 55 60

Cys Leu Leu Tyr Leu Phe Asn Val His Ile Leu Lys Lys Ser Ser Leu
65 70 75 80

Tyr Glu Leu Phe

<210> 1648

<211> 60
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (18)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (26)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (29)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (44)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1648
Leu Lys Ile Asn Tyr Ile Lys Ile Ser Phe Phe Val Leu Val Phe Phe
1 5 10 15

Leu Xaa Thr Leu Cys Phe Lys Tyr Lys Xaa Lys Tyr Xaa Ile Tyr Phe
20 25 30

Cys Val Leu Pro Ser Glu Leu Lys Phe Pro Met Xaa Leu Thr Glu Leu
35 40 45

Gly Leu Ala Leu Gly Glu Glu Trp Thr Ala Ala Gly
50 55 60

<210> 1649
<211> 390
<212> PRT
<213> Homo sapiens

<400> 1649
Ala Arg Gly Glu Cys Cys Arg Gly Gly Leu Trp Glu Lys Met Ala Ala
1 5 10 15

Ala Ala Gln Ser Arg Val Val Arg Val Leu Ser Met Ser Arg Ser Ala
20 25 30

Ile Thr Ala Ile Ala Thr Ser Val Cys His Gly Pro Pro Cys Arg Gln
35 40 45

Leu His His Ala Leu Met Pro His Gly Lys Gly Gly Arg Ser Ser Val
50 55 60

Ser Gly Ile Val Ala Thr Val Phe Gly Ala Thr Gly Phe Leu Gly Arg
65 70 75 80

Tyr Val Val Asn His Leu Gly Arg Met Gly Ser Gln Val Ile Ile Pro
85 90 95

Tyr Arg Cys Asp Lys Tyr Asp Ile Met His Leu Arg Pro Met Gly Asp
100 105 110

Leu Gly Gln Leu Leu Phe Leu Glu Trp Asp Ala Arg Asp Lys Asp Ser
115 120 125

Ile Arg Arg Val Val Gln His Ser Asn Val Val Ile Asn Leu Ile Gly
130 135 140

Arg Asp Trp Glu Thr Lys Asn Phe Asp Phe Glu Asp Val Phe Val Lys
145 150 155 160

Ile Pro Gln Ala Ile Ala Gln Leu Ser Lys Glu Ala Gly Val Glu Lys
165 170 175

Phe Ile His Val Ser His Leu Asn Ala Asn Ile Lys Ser Ser Ser Arg
180 185 190

Tyr Leu Arg Asn Lys Ala Val Gly Glu Lys Val Val Arg Asp Ala Phe
195 200 205

Pro Glu Ala Ile Ile Val Lys Pro Ser Asp Ile Phe Gly Arg Glu Asp
210 215 220

Arg Phe Leu Asn Ser Phe Ala Ser Met His Arg Phe Gly Pro Ile Pro
225 230 235 240

Leu Gly Ser Leu Gly Trp Lys Thr Val Lys Gln Pro Val Tyr Val Val
245 250 255

Asp Val Ser Lys Gly Ile Val Asn Ala Val Lys Asp Pro Asp Ala Asn
260 265 270

Gly Lys Ser Phe Ala Phe Val Gly Pro Ser Arg Tyr Leu Leu Phe His
275 280 285

Leu Val Lys Tyr Ile Phe Ala Val Ala His Arg Leu Phe Leu Pro Phe
290 295 300

Pro Leu Pro Leu Phe Ala Tyr Arg Trp Val Ala Arg Val Phe Glu Ile
305 310 315 320

Ser Pro Phe Glu Pro Trp Ile Thr Arg Asp Lys Val Glu Arg Met His
325 330 335

Ile Thr Asp Met Lys Leu Pro His Leu Pro Gly Leu Glu Asp Leu Gly
340 345 350

Ile Gln Ala Thr Pro Leu Glu Leu Lys Ala Ile Glu Val Leu Arg Arg
355 360 365

His Arg Thr Tyr Arg Trp Leu Ser Ala Glu Ile Glu Asp Val Lys Pro
370 375 380

Ala Lys Thr Val Asn Ile
385 390

<210> 1650
<211> 99
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (25)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (58)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (81)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (92)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1650
Gly Ser Met Gly Gln Ala Gln Ser Lys Pro Thr Pro Pro Gly Thr Met
1 5 10 15

Leu Lys Asn Phe Lys Lys Gly Phe Xaa Gly Asp Tyr Gly Val Thr Met
20 25 30

Thr Pro Gly Lys Leu Arg Thr Leu Cys Glu Ile Asp Trp Pro Ala Leu
35 40 45

Glu Val Gly Trp Pro Ser Glu Gly Ser Xaa Asp Arg Ser Leu Val Ser
50 55 60

Lys Val Trp His Lys Val Thr Cys Lys Pro Gly Cys Pro Asp Gln Phe
65 70 75 80

Xaa Tyr Ile Asp Thr Trp Leu Gln Leu Val Leu Xaa Pro Ser Tyr Pro
85 90 95

His Gly Gly

<210> 1651
<211> 153
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (86)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1651
Ala Gly Thr Gly Gly Arg Arg Trp Gly Asn Arg Gly Ser Val Arg Leu
1 5 10 15

Arg Val Arg Gly Ser Asp Trp Ala Glu Gln Ala Ser His Arg Arg Val
20 25 30

Thr Ala Arg Arg Pro Arg Ser Glu Leu Pro Gly Gln Pro Pro Phe Cys
35 40 45

Trp Arg Trp Glu Arg Met Trp Ala Trp Gly Trp Gly Gly Ala Lys Leu
50 55 60

Arg Gly Arg Ala Ala Asp Thr Leu Lys Leu Arg Ala Gly Arg Ala Gln
65 70 75 80

Arg Lys Gly Arg Arg Xaa His Gly Tyr Pro Ser Val Arg Gly Ser Ser
85 90 95

Ser Phe Phe Trp Arg Ala Gln Gly Ala Ala Gly Val Met Ser Pro Trp
100 105 110

Val Leu Ala Pro Thr Ala Lys Phe Ala Trp Pro Gly Pro Pro Ser Arg

115 120 125

Gly Leu Thr Arg His Thr Asp Gln Asn Pro Glu Gln Ala Val Leu Ser
130 135 140

Ile Leu Arg Leu Leu Arg Leu Pro Arg
145 150

<210> 1652
<211> 312
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (289)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1652
Thr Phe Ile Trp Leu Ile Leu Ile Met Asn Arg Ala Phe Ser Arg Lys
1 5 10 15

Lys Asp Lys Thr Trp Met His Thr Pro Glu Ala Leu Ser Lys His Phe
20 25 30

Ile Pro Tyr Asn Ala Lys Phe Leu Gly Ser Thr Glu Val Glu Gln Pro
35 40 45

Lys Gly Thr Glu Val Val Arg Asp Ala Val Arg Lys Leu Lys Phe Ala
50 55 60

Arg His Ile Lys Lys Ser Glu Gly Gln Lys Ile Pro Lys Val Glu Leu
65 70 75 80

Gln Ile Ser Ile Tyr Gly Val Lys Ile Leu Glu Pro Lys Thr Lys Glu
85 90 95

Val Gln His Asn Cys Gln Leu His Arg Ile Ser Phe Cys Ala Asp Asp
100 105 110

Lys Thr Asp Lys Arg Ile Phe Thr Phe Ile Cys Lys Asp Ser Glu Ser
115 120 125

Asn Lys His Leu Cys Tyr Val Phe Asp Ser Glu Lys Cys Ala Glu Glu
130 135 140

Ile Thr Leu Thr Ile Gly Gln Ala Phe Asp Leu Ala Tyr Arg Lys Phe
145 150 155 160

Leu Glu Ser Gly Gly Lys Asp Val Glu Thr Arg Lys Gln Ile Ala Gly
165 170 175

Leu Gln Lys Arg Ile Gln Asp Leu Glu Thr Glu Asn Met Glu Leu Lys
180 185 190

Asn Lys Val Gln Asp Leu Glu Asn Gln Leu Arg Ile Thr Gln Val Ser
195 200 205

Ala Pro Pro Ala Gly Ser Met Thr Pro Lys Ser Pro Ser Thr Asp Ile
210 215 220

Phe Asp Met Ile Pro Phe Ser Pro Ile Ser His Gln Ser Ser Met Pro
225 230 235 240

Thr Arg Asn Gly Thr Gln Pro Pro Pro Val Pro Ser Arg Ser Thr Glu
245 250 255

Ile Lys Arg Asp Leu Phe Gly Ala Glu Pro Phe Asp Pro Phe Asn Cys
260 265 270

Gly Ala Ala Asp Phe Pro Pro Asp Ile Gln Ser Lys Leu Asp Glu Met
275 280 285

Xaa Glu Gly Phe Lys Met Gly Leu Thr Leu Glu Gly Thr Val Phe Cys
290 295 300

Leu Asp Pro Leu Asp Ser Arg Cys
305 310

<210> 1653
<211> 50
<212> PRT
<213> Homo sapiens

<400> 1653
Tyr Gly Leu Gly Lys Lys Thr Lys Gln Ala Ser Cys Cys Leu Phe Tyr
1 5 10 15

Ser Asn Ile Leu Leu His Met Ile Asp Ile Phe Val Val Gly Lys Trp
20 25 30

Asp Ala Pro Gln Ile Leu Lys Val Leu Ala Asp Cys Ile Leu Ser Leu
35 40 45

Lys Ile
50

<210> 1654
<211> 117
<212> PRT
<213> Homo sapiens

<400> 1654
Tyr Lys Asn Asp Arg Ser Ser Tyr Glu Arg His Ala Asn Glu Thr Pro
1   5   10   15

Ser Ser Gly Glu Ala Leu Glu Ser Glu Leu Ser Phe Phe Leu Met Ser
            20   25   30

Ser Asp Ala Ala Ser Phe Leu Ile Phe Leu Lys Thr Val Cys Phe Cys
        35   40   45

Gly Met Tyr Ile Cys Thr Pro Asn Tyr Leu Ala Leu Gly Asn His Ser
    50   55   60

Thr Thr Gln Arg Gln Leu Asn Lys Glu Lys Phe Asn Phe Lys Tyr Gln
65   70   75   80

Val Leu Ser Asn Ile Ser Gln Thr Ser Asp Phe Ile Lys Gly Leu Pro
                85   90   95

Ala Asn Lys Val His Pro Lys Tyr Thr Gly Glu Lys Ala Arg Leu Leu
            100   105   110

Gln Gly Pro Arg Val
        115

<210> 1655
<211> 373
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (144)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (290)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (325)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (328)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1655
Val Met Ser Thr Ala Ala Leu Ile Thr Leu Val Arg Ser Gly Gly Asn
1 5 10 15

Gln Val Arg Arg Arg Val Leu Leu Ser Ser Arg Leu Leu Gln Asp Asp
20 25 30

Arg Arg Val Thr Pro Thr Cys His Ser Ser Thr Ser Glu Pro Arg Cys
35 40 45

Ser Arg Phe Asp Pro Asp Gly Ser Gly Ser Pro Ala Thr Trp Asp Asn
50 55 60

Phe Gly Ile Trp Asp Asn Arg Ile Asp Glu Pro Ile Leu Leu Pro Pro
65 70 75 80

Ser Ile Lys Tyr Gly Lys Pro Ile Pro Lys Ile Ser Leu Glu Asn Val
85 90 95

Gly Cys Ala Ser Gln Ile Gly Lys Arg Lys Glu Asn Glu Asp Arg Phe
100 105 110

Asp Phe Ala Gln Leu Thr Asp Glu Val Leu Tyr Phe Ala Val Tyr Asp
115 120 125

Gly His Gly Gly Pro Ala Ala Ala Asp Phe Cys His Thr His Met Xaa
130 135 140

Lys Cys Ile Met Asp Leu Leu Pro Lys Glu Lys Asn Leu Glu Thr Leu
145 150 155 160

Leu Thr Leu Ala Phe Leu Glu Ile Asp Lys Ala Phe Ser Ser His Ala
165 170 175

Arg Leu Ser Ala Asp Ala Thr Leu Leu Thr Ser Gly Thr Thr Ala Thr
180 185 190

Val Ala Leu Leu Arg Asp Gly Ile Glu Leu Val Val Ala Ser Val Gly
195 200 205

Asp Ser Arg Ala Ile Leu Cys Arg Lys Gly Lys Pro Met Lys Leu Thr
210 215 220

Ile Asp His Thr Pro Glu Arg Lys Asp Glu Lys Glu Arg Ile Lys Lys

225 230 235 240

Cys Gly Gly Phe Val Ala Trp Asn Ser Leu Gly Gln Pro His Val Asn
245 250 255

Gly Arg Leu Ala Met Thr Arg Ser Ile Gly Asp Leu Asp Leu Lys Thr
260 265 270

Ser Gly Val Ile Ala Glu Pro Glu Thr Lys Arg Ile Lys Leu His His
275 280 285

Ala Xaa Asp Ser Phe Leu Val Leu Thr Thr Asp Gly Ile Asn Phe Met
290 295 300

Val Asn Ser Gln Glu Ile Cys Asp Phe Val Asn Gln Cys His Asp Pro
305 310 315 320

Asn Glu Ala Ala Xaa Ala Val Xaa Glu Gln Ala Ile Gln Tyr Gly Thr
325 330 335

Glu Asp Asn Ser Thr Ala Val Val Val Pro Phe Gly Ala Trp Gly Lys
340 345 350

Tyr Lys Asn Ser Glu Ile Asn Phe Ser Phe Ser Arg Ser Phe Ala Ser
355 360 365

Ser Gly Arg Trp Ala
370

<210> 1656
<211> 82
<212> PRT
<213> Homo sapiens

<400> 1656
Arg Pro Thr Arg Pro Pro Gly Arg Thr Ala Ser Arg Leu Ala Glu Cys
1 5 10 15

Gly Leu Ala Gly Ser Ala Val Ser Gln Arg Glu Gln Thr Ser Pro Ser
20 25 30

Pro Ser Gly Gln Leu Arg Glu Lys Asn Phe Arg Glu Phe Pro Ala Gly
35 40 45

Lys Ala Val Ala Ala Leu Thr Ala Cys Phe Gly Asp Pro Arg Arg Arg
50 55 60

Arg Arg His Ser Tyr Leu Pro Thr Lys Lys Ala Pro Pro Pro Ser Ser
65 70 75 80

Val Ser

<210> 1657
<211> 273
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (30)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1657
Val Ala Arg Ser Ser Ser Glu Leu Pro Arg Arg Leu Val Cys Ser Lys
1 5 10 15

Leu Arg Ala Asp Pro Gly Arg Leu Thr Pro Asp Ala Cys Xaa Arg Pro
20 25 30

Gly Met Ser Arg Tyr Leu Leu Pro Leu Ser Ala Leu Gly Thr Val Ala
35 40 45

Gly Ala Ala Val Leu Leu Lys Asp Tyr Val Thr Gly Gly Ala Cys Pro
50 55 60

Ser Lys Ala Thr Ile Pro Gly Lys Thr Val Ile Val Thr Gly Ala Asn
65 70 75 80

Thr Gly Ile Gly Lys Gln Thr Ala Leu Glu Leu Ala Arg Arg Gly Gly
85 90 95

Asn Ile Ile Leu Ala Cys Arg Asp Met Glu Lys Cys Glu Ala Ala Ala
100 105 110

Lys Asp Ile Arg Gly Glu Thr Leu Asn His His Val Asn Ala Arg His
115 120 125

Leu Asp Leu Ala Ser Leu Lys Ser Ile Arg Glu Phe Ala Ala Lys Ile
130 135 140

Ile Glu Glu Glu Glu Arg Val Asp Ile Leu Ile Asn Asn Ala Gly Val
145 150 155 160

Met Arg Cys Pro His Trp Thr Thr Glu Asp Gly Phe Glu Met Gln Phe
165 170 175

Gly Val Asn His Leu Gly His Phe Leu Leu Thr Asn Leu Leu Leu Asp

180 185 190

Lys Leu Lys Ala Ser Ala Pro Ser Arg Ile Ile Asn Leu Ser Ser Leu
195 200 205

Ala His Val Ala Gly His Ile Asp Phe Asp Asp Leu Asn Trp Gln Thr
210 215 220

Arg Lys Tyr Asn Thr Lys Ala Ala Tyr Cys Gln Ser Lys Leu Ala Ile
225 230 235 240

Val Leu Phe Thr Lys Glu Leu Ser Arg Arg Leu Gln Gly Thr Gly Ala
245 250 255

Leu Gly Ser Ala Ser Leu Leu Leu Tyr Ser Glu Pro Arg Ala Ala Phe
260 265 270

Pro

<210> 1658
<211> 240
<212> PRT
<213> Homo sapiens

<400> 1658
Tyr Leu Cys Ile Leu Gln Ala Ser Lys Leu Glu Asp Leu Arg Val Lys
1 5 10 15

Leu Lys Lys Glu Gly Tyr Ser Asn Ile Ser Tyr Ile Val Val Asn His
20 25 30

Gln Gly Ile Ser Ser Arg Leu Lys Tyr Thr His Leu Lys Asn Lys Val
35 40 45

Ser Glu His Ile Pro Val Tyr Gln Gln Glu Glu Asn Gln Thr Asp Val
50 55 60

Trp Thr Leu Leu Asn Gly Ser Lys Asp Asp Phe Leu Ile Tyr Asp Arg
65 70 75 80

Cys Gly Arg Leu Val Tyr His Leu Gly Leu Pro Phe Ser Phe Leu Thr
85 90 95

Phe Pro Tyr Val Glu Glu Ala Ile Lys Ile Ala Tyr Cys Glu Lys Lys
100 105 110

Cys Gly Asn Cys Ser Leu Thr Thr Leu Lys Asp Glu Asp Phe Cys Lys
115 120 125

Arg Val Ser Leu Ala Thr Val Asp Lys Thr Val Glu Thr Pro Ser Pro
130 135 140

His Tyr His His Glu His His His Asn His Gly His Gln His Leu Gly
145 150 155 160

Ser Ser Glu Leu Ser Glu Asn Gln Gln Pro Gly Ala Pro Asn Ala Pro
165 170 175

Thr His Pro Ala Pro Pro Gly Leu His His His His Lys His Lys Gly
180 185 190

Gln His Arg Gln Gly His Pro Glu Asn Arg Asp Met Pro Ala Ser Glu
195 200 205

Asp Leu Gln Asp Leu Gln Lys Lys Leu Cys Arg Lys Arg Cys Ile Asn
210 215 220

Gln Leu Leu Cys Lys Leu Pro Thr Asp Ser Glu Leu Ala Pro Arg Ser
225 230 235 240

<210> 1659
<211> 221
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (1)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1659
Xaa Thr Arg Gly Tyr Gly Cys Glu Lys Thr Thr Glu Gly Gly Ser Gln
1 5 10 15

Gly Pro Leu Pro Ala Leu Ala Ala Gly Ser Thr Phe Pro Val Leu Ala
20 25 30

Cys Ser Ser Ala Met Ala Pro Lys Gly Ser Ser Lys Gln Gln Ser Glu
35 40 45

Glu Asp Leu Leu Leu Gln Asp Phe Ser Arg Asn Leu Ser Ala Lys Ser
50 55 60

Ser Ala Leu Phe Phe Gly Asn Ala Phe Ile Val Ser Ala Ile Pro Ile

65 70 75 80

Trp Leu Tyr Trp Arg Ile Trp His Met Asp Leu Ile Gln Ser Ala Val
85 90 95

Leu Tyr Ser Val Met Thr Leu Val Ser Thr Tyr Leu Val Ala Phe Ala
100 105 110

Tyr Lys Asn Val Lys Phe Val Leu Lys His Lys Val Ala Gln Lys Arg
115 120 125

Glu Asp Ala Val Ser Lys Glu Val Thr Arg Lys Leu Ser Glu Ala Asp
130 135 140

Asn Arg Lys Met Ser Arg Lys Glu Lys Asp Glu Arg Ile Leu Trp Lys
145 150 155 160

Lys Asn Glu Val Ala Asp Tyr Glu Ala Thr Thr Phe Ser Ile Phe Tyr
165 170 175

Asn Asn Thr Leu Phe Leu Val Val Val Ile Val Ala Ser Phe Phe Ile
180 185 190

Leu Lys Asn Phe Asn Pro Thr Val Asn Tyr Ile Leu Ser Ile Ser Ala
195 200 205

Ser Ser Gly Leu Ile Ala Leu Leu Ser Thr Gly Ser Lys
210 215 220

<210> 1660
<211> 421
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (140)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (164)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (167)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (321)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (383)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (403)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1660
Glu Leu Gly Ala Gly Gly Asp Gly His Arg Gly Gly Asp Gly Ala Val
1   5   10   15

Arg Ser Glu Thr Ala Pro Asp Ser Tyr Lys Val Gln Asp Lys Lys Asn
            20   25   30

Ala Ser Ser Arg Pro Ala Ser Ala Ile Ser Gly Gln Asn Asn Asn His
        35   40   45

Ser Gly Asn Lys Pro Asp Pro Pro Pro Val Leu Arg Val Asp Asp Arg
    50   55   60

Gln Arg Leu Ala Arg Glu Arg Arg Glu Glu Arg Glu Lys Gln Leu Ala
65   70   75   80

Ala Arg Glu Ile Val Trp Leu Glu Arg Glu Glu Arg Ala Arg Gln His
                85   90   95

Tyr Glu Lys His Leu Glu Glu Arg Lys Lys Arg Leu Glu Glu Gln Arg
            100   105   110

Gln Lys Glu Glu Arg Arg Arg Ala Ala Val Glu Glu Lys Arg Arg Gln
        115   120   125

Arg Leu Glu Glu Asp Lys Glu Arg His Glu Ala Xaa Val Arg Arg Thr
    130   135   140

Met Glu Arg Ser Gln Lys Pro Lys Gln Lys His Asn Arg Trp Ser Trp
145   150   155   160

Gly Gly Ser Xaa His Gly Xaa Pro Ser Ile His Ser Ala Ala Arg Arg
                165   170   175

Leu Gln Leu Ser Pro Trp Glu Ser Ser Val Val Asn Arg Leu Leu Thr
            180   185   190

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Pro Thr His Ser Phe Leu Ala Arg Ser Lys Ser Thr Ala Ala Leu Ser
        195                 200                 205

Gly Glu Ala Ala Ser Cys Ser Pro Ile Ile Met Pro Tyr Lys Ala Ala
    210                 215                 220

His Ser Arg Asn Ser Met Asp Arg Pro Lys Leu Phe Val Thr Pro Pro
225                 230                 235                 240

Glu Gly Ser Ser Arg Arg Arg Ile Ile His Gly Thr Ala Ser Tyr Lys
                245                 250                 255

Lys Glu Arg Glu Arg Glu Asn Val Leu Phe Leu Thr Ser Gly Thr Arg
            260                 265                 270

Arg Ala Val Ser Pro Ser Asn Pro Lys Ala Arg Gln Pro Ala Arg Ser
        275                 280                 285

Arg Leu Trp Leu Pro Ser Lys Ser Leu Pro His Leu Pro Gly Thr Pro
    290                 295                 300

Arg Pro Thr Ser Ser Leu Pro Pro Gly Ser Val Lys Ala Ala Pro Ala
305                 310                 315                 320

Xaa Val Arg Pro Pro Ser Pro Gly Asn Ile Arg Pro Val Lys Arg Glu
                325                 330                 335

Val Lys Val Glu Pro Glu Lys Lys Asp Pro Glu Lys Glu Pro Gln Lys
            340                 345                 350

Val Ala Asn Glu Pro Ser Leu Lys Gly Arg Ala Pro Leu Val Lys Val
        355                 360                 365

Glu Glu Ala Thr Val Glu Glu Arg Thr Pro Ala Glu Pro Glu Xaa Gly
    370                 375                 380

Leu Leu Leu Gln Pro Trp Pro Gln Leu Gln Pro Arg Pro Gln Leu Gln
385                 390                 395                 400

Pro Arg Xaa Gln Leu Gln Pro Arg Ser Pro Pro Gln Pro Trp Ser Gln
                405                 410                 415

Pro Arg His Pro Leu
            420
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<210> 1661
<211> 468
<212> PRT

<213> Homo sapiens

<220>
<221> SITE
<222> (2)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1661
Arg Xaa Thr Thr Ser Gly Thr Leu Asp Phe Asp Glu Val Val Asn Asp
1 5 10 15

Ala Asp Ile Ile Leu Val Glu Phe Tyr Ala Pro Trp Cys Gly His Cys
20 25 30

Lys Lys Leu Ala Pro Glu Tyr Glu Lys Ala Ala Lys Glu Leu Ser Lys
35 40 45

Arg Ser Pro Pro Ile Pro Leu Ala Lys Val Asp Ala Thr Ala Glu Thr
50 55 60

Asp Leu Ala Lys Arg Phe Asp Val Ser Gly Tyr Pro Thr Leu Lys Ile
65 70 75 80

Phe Arg Lys Gly Arg Pro Tyr Asp Tyr Asn Gly Pro Arg Glu Lys Tyr
85 90 95

Gly Ile Val Asp Tyr Met Ile Glu Gln Ser Gly Pro Pro Ser Lys Glu
100 105 110

Ile Leu Thr Leu Lys Gln Val Gln Glu Phe Leu Lys Asp Gly Asp Asp
115 120 125

Val Ile Ile Ile Gly Val Phe Lys Gly Glu Ser Asp Pro Ala Tyr Gln
130 135 140

Gln Tyr Gln Asp Ala Ala Asn Asn Leu Arg Glu Asp Tyr Lys Phe His
145 150 155 160

His Thr Phe Ser Thr Glu Ile Ala Lys Phe Leu Lys Val Ser Gln Gly
165 170 175

Gln Leu Val Val Met Gln Pro Glu Lys Phe Gln Ser Lys Tyr Glu Pro
180 185 190

Arg Ser His Met Met Asp Val Gln Gly Ser Thr Gln Asp Ser Ala Ile
195 200 205

Lys Asp Phe Val Leu Lys Tyr Ala Leu Pro Leu Val Gly His Arg Lys
210 215 220

Val Ser Asn Asp Ala Lys Arg Tyr Thr Arg Arg Pro Leu Val Val Val

225 230 235 240

Tyr Tyr Ser Val Asp Phe Ser Phe Asp Tyr Arg Ala Ala Thr Gln Phe
245 250 255

Trp Arg Ser Lys Val Leu Glu Val Ala Lys Asp Phe Pro Glu Tyr Thr
260 265 270

Phe Ala Ile Ala Asp Glu Glu Asp Tyr Ala Gly Glu Val Lys Asp Leu
275 280 285

Gly Leu Ser Glu Ser Gly Glu Asp Val Asn Ala Ala Ile Leu Asp Glu
290 295 300

Ser Gly Lys Lys Phe Ala Met Glu Pro Glu Glu Phe Asp Ser Asp Thr
305 310 315 320

Leu Arg Glu Phe Val Thr Ala Phe Lys Lys Gly Lys Leu Lys Pro Val
325 330 335

Ile Lys Ser Gln Pro Val Pro Lys Asn Asn Lys Gly Pro Val Lys Val
340 345 350

Val Val Gly Lys Thr Phe Asp Ser Ile Val Met Asp Pro Lys Lys Asp
355 360 365

Val Leu Ile Glu Phe Tyr Ala Pro Trp Cys Gly His Cys Lys Gln Leu
370 375 380

Glu Pro Val Tyr Asn Ser Leu Ala Lys Lys Tyr Lys Gly Gln Lys Gly
385 390 395 400

Leu Val Ile Ala Lys Met Asp Ala Thr Ala Asn Asp Val Pro Ser Asp
405 410 415

Arg Tyr Lys Val Glu Gly Phe Pro Thr Ile Tyr Phe Ala Pro Ser Gly
420 425 430

Asp Lys Lys Asn Pro Val Lys Phe Glu Gly Gly Asp Arg Asp Leu Glu
435 440 445

His Leu Ser Lys Phe Ile Glu Glu His Ala Thr Lys Leu Ser Arg Thr
450 455 460

Lys Glu Glu Leu
465

<210> 1662
<211> 355

<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (6)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (262)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1662
Ala Ala Gly Ile Arg Xaa Arg Arg Gly Gly Cys Lys Met Pro Leu Pro
1 5 10 15

Val Gln Val Phe Asn Leu Gln Gly Ala Val Glu Pro Met Gln Ile Asp
20 25 30

Val Asp Pro Gln Glu Asp Pro Gln Asn Ala Pro Asp Val Asn Tyr Val
35 40 45

Val Glu Asn Pro Ser Leu Asp Leu Glu Gln Tyr Ala Ala Ser Tyr Ser
50 55 60

Gly Leu Met Arg Ile Glu Arg Leu Gln Phe Ile Ala Asp His Cys Pro
65 70 75 80

Thr Leu Arg Val Glu Ala Leu Lys Met Ala Leu Ser Phe Val Gln Arg
85 90 95

Thr Phe Asn Val Asp Met Tyr Glu Glu Ile His Arg Lys Leu Ser Glu
100 105 110

Ala Thr Arg Glu Leu Gln Asn Ala Pro Asp Ala Ile Pro Glu Ser Gly
115 120 125

Val Glu Pro Pro Ala Leu Asp Thr Ala Trp Val Glu Ala Thr Arg Lys
130 135 140

Lys Ala Leu Leu Lys Leu Glu Lys Leu Asp Thr Asp Leu Lys Asn Tyr
145 150 155 160

Lys Gly Asn Ser Ile Lys Glu Ser Ile Arg Arg Gly His Asp Asp Leu
165 170 175

Gly Asp His Tyr Leu Asp Cys Gly Asp Leu Ser Asn Ala Leu Lys Cys
180 185 190

Tyr Ser Arg Ala Arg Asp Tyr Cys Thr Ser Ala Lys His Val Ile Asn

195 200 205

Met Cys Leu Asn Val Ile Lys Val Ser Val Tyr Leu Gln Asn Trp Ser
210 215 220

His Val Leu Ser Tyr Val Ser Lys Ala Glu Ser Thr Pro Glu Ile Ala
225 230 235 240

Glu Gln Arg Gly Glu Arg Asp Ser Gln Thr Gln Ala Ile Leu Thr Lys
245 250 255

Leu Lys Cys Ala Ala Xaa Trp Gln Ser Trp Pro Pro Gly Ser Thr Ser
260 265 270

Arg Leu Pro Ser Ala Ser Cys Trp Leu Pro Leu Ile Thr Val Thr Ser
275 280 285

Leu Ser Cys Cys Pro Pro Ala Thr Trp Pro Ser Thr Val Ala Cys Ala
290 295 300

Pro Trp Leu Pro Leu Thr Gly Arg Ser Cys Ser Ala Met Ser Ser Pro
305 310 315 320

Ala Ala Pro Ser Ser Cys Ser Trp Ser Trp Ser His Arg Ser Glu Thr
325 330 335

Ser Ser Ser Asn Ser Thr Ser Pro Ser Thr Pro His Val Ser Arg Cys
340 345 350

Trp Thr Arg
355

<210> 1663
<211> 74
<212> PRT
<213> Homo sapiens

<400> 1663
Leu Ser His Leu Ser Leu Leu Asn Ser Trp Asp Tyr Arg Cys Met Leu
1 5 10 15

Pro Cys Leu Ala Thr Phe Cys Val Phe Ser Arg Asp Arg Val Ser Pro
20 25 30

Cys Trp Ser Gly Trp Ser Arg Thr Pro Asp Leu Lys Trp Ser Val Trp
35 40 45

Leu Gly Leu Pro Arg Cys Trp Asp Tyr Arg Cys Glu Pro Leu His Leu
50 55 60

Ala Tyr Ile Gly Phe Phe Leu Lys Pro Ile
65 70

<210> 1664
<211> 485
<212> PRT
<213> Homo sapiens

<400> 1664
Pro Gly Ser Ile Leu Arg Glu Thr Gly Leu Gly Cys Asp Ala Ala Ala
1 5 10 15

Gly Val Arg Met Ser Tyr Pro Gly Tyr Pro Pro Thr Gly Tyr Pro Pro
20 25 30

Phe Pro Gly Tyr Pro Pro Ala Gly Gln Glu Ser Ser Phe Pro Pro Ser
35 40 45

Gly Gln Tyr Pro Tyr Pro Ser Gly Phe Pro Pro Met Gly Gly Gly Ala
50 55 60

Tyr Pro Gln Val Pro Ser Ser Gly Tyr Pro Gly Ala Gly Gly Tyr Pro
65 70 75 80

Ala Pro Gly Gly Tyr Pro Ala Pro Gly Gly Tyr Pro Gly Ala Pro Gln
85 90 95

Pro Gly Gly Ala Pro Ser Tyr Pro Gly Val Pro Pro Gly Gln Gly Phe
100 105 110

Gly Val Pro Pro Gly Gly Ala Gly Phe Ser Gly Tyr Pro Gln Pro Pro
115 120 125

Ser Gln Ser Tyr Gly Gly Gly Pro Ala Gln Val Pro Leu Pro Gly Gly
130 135 140

Phe Pro Gly Gly Gln Met Pro Ser Gln Tyr Pro Gly Gly Gln Pro Thr
145 150 155 160

Tyr Pro Ser Gln Pro Ala Thr Val Thr Gln Val Thr Gln Gly Thr Ile
165 170 175

Arg Pro Ala Ala Asn Phe Asp Ala Ile Arg Asp Ala Glu Ile Leu Arg
180 185 190

Lys Ala Met Lys Gly Phe Gly Thr Asp Glu Gln Ala Ile Val Asp Val
195 200 205

Val Ala Asn Arg Ser Asn Asp Gln Arg Gln Lys Ile Lys Ala Ala Phe
210 215 220

Lys Thr Ser Tyr Gly Lys Asp Leu Ile Lys Asp Leu Lys Ser Glu Leu
225 230 235 240

Ser Gly Asn Met Glu Glu Leu Ile Leu Ala Leu Phe Met Pro Pro Thr
245 250 255

Tyr Tyr Asp Ala Trp Ser Leu Arg Lys Ala Met Gln Gly Ala Gly Thr
260 265 270

Gln Glu Arg Val Leu Ile Glu Ile Leu Cys Thr Arg Thr Asn Gln Glu
275 280 285

Ile Arg Glu Ile Val Arg Cys Tyr Gln Ser Glu Phe Gly Arg Asp Leu
290 295 300

Glu Lys Asp Ile Arg Ser Asp Thr Ser Gly His Phe Glu Arg Leu Leu
305 310 315 320

Val Ser Met Cys Gln Gly Asn Arg Asp Glu Asn Gln Ser Ile Asn His
325 330 335

Gln Met Ala Gln Glu Asp Ala Gln Arg Leu Tyr Gln Ala Gly Glu Gly
340 345 350

Arg Leu Gly Thr Asp Glu Ser Cys Phe Asn Met Ile Leu Ala Thr Arg
355 360 365

Ser Phe Pro Gln Leu Arg Ala Thr Met Glu Ala Tyr Ser Arg Met Ala
370 375 380

Asn Arg Asp Leu Leu Ser Ser Val Ser Arg Glu Phe Ser Gly Tyr Val
385 390 395 400

Glu Ser Gly Leu Lys Thr Ile Leu Gln Cys Ala Leu Asn Arg Pro Ala
405 410 415

Phe Phe Ala Glu Arg Leu Tyr Tyr Ala Met Lys Gly Ala Gly Thr Asp
420 425 430

Asp Ser Thr Leu Val Arg Ile Val Val Thr Arg Ser Glu Ile Asp Leu
435 440 445

Val Gln Ile Lys Gln Met Phe Ala Gln Met Tyr Gln Lys Thr Leu Gly
450 455 460

Thr Met Ile Ala Gly Asp Thr Ser Gly Asp Tyr Arg Arg Leu Leu Leu
465 470 475 480

Ala Ile Val Gly Gln
485

<210> 1665
<211> 235
<212> PRT
<213> Homo sapiens

<400> 1665
Arg Asn Val Ile Glu Ala Cys Leu Gln Thr Gly Thr Arg Phe Leu Val
1 5 10 15

Tyr Thr Ser Ser Met Glu Val Val Gly Pro Asn Thr Lys Gly His Pro
20 25 30

Phe Tyr Arg Gly Asn Glu Asp Thr Pro Tyr Glu Ala Val His Arg His
35 40 45

Pro Tyr Pro Cys Ser Lys Ala Leu Ala Glu Trp Leu Val Leu Glu Ala
50 55 60

Asn Gly Arg Lys Val Arg Gly Gly Leu Pro Leu Val Thr Cys Ala Leu
65 70 75 80

Arg Pro Thr Gly Ile Tyr Gly Glu Gly His Gln Ile Met Arg Asp Phe
85 90 95

Tyr Arg Gln Gly Leu Arg Leu Gly Gly Trp Leu Phe Arg Ala Ile Pro
100 105 110

Ala Ser Val Glu His Gly Arg Val Tyr Val Gly Asn Val Ala Trp Met
115 120 125

His Val Leu Ala Ala Arg Glu Leu Glu Gln Arg Ala Ala Leu Met Gly
130 135 140

Gly Gln Val Tyr Phe Cys Tyr Asp Gly Ser Pro Tyr Arg Ser Tyr Glu
145 150 155 160

Asp Phe Asn Met Glu Phe Leu Gly Pro Leu Arg Thr Ala Ala Gly Gly
165 170 175

Arg Pro Pro Ile Ala Ala Leu Leu Ala Ala Gly Val Pro Gly Cys Pro
180 185 190

Gln Cys Pro Ala Ala Val Ala Ala Ala Ala Thr Gly Ala Leu Arg Thr
195 200 205

Pro Ala Glu Pro Leu His Ala Gly Arg Gly Gln His His Leu His Arg

210 215 220

Gln His Arg Gln Gly Ser Ala Pro Phe Arg Leu
225 230 235

<210> 1666
<211> 292
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (85)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1666
Ala Ala Leu Glu Gly Pro Glu Glu Glu Leu Glu Gly Ser Ser Glu Pro
1 5 10 15

Glu Glu Trp Cys Pro Pro Met Pro Glu Arg Ser His Leu Thr Glu Pro
20 25 30

Ser Ser Ser Gly Gly Cys Leu Val Thr Pro Ser Arg Arg Glu Thr Pro
35 40 45

Ser Pro Thr Pro Ser Tyr Gly Gln Gln Ser Thr Ala Thr Leu Thr Pro
50 55 60

Ser Pro Pro Asp Pro Pro Gln Pro Pro Thr Asp Met Pro His Leu His
65 70 75 80

Gln Met Pro Arg Xaa Val Pro Leu Gly Pro Ser Ser Pro Leu Ser Val
85 90 95

Ser Gln Pro Met Leu Gly Ile Arg Glu Ala Arg Pro Ala Gly Leu Gly
100 105 110

Ala Gly Pro Ala Ala Ser Pro His Leu Ser Pro Ser Pro Ala Pro Ser
115 120 125

Thr Ala Ser Ser Ala Pro Gly Arg Thr Trp Gln Gly Asn Gly Glu Met
130 135 140

Thr Pro Pro Leu Gln Gly Pro Arg Ala Arg Phe Arg Lys Lys Pro Lys
145 150 155 160

Ala Leu Pro Tyr Arg Arg Glu Asn Ser Pro Gly Asp Leu Pro Pro Pro
165 170 175

Pro Leu Pro Pro Pro Glu Glu Glu Ala Ser Trp Ala Leu Glu Leu Arg
180 185 190

Ala Ala Gly Ser Met Ser Ser Leu Glu Arg Glu Arg Ser Gly Glu Arg
195 200 205

Lys Ala Val Gln Ala Val Pro Leu Ala Ala Gln Arg Val Leu His Pro
210 215 220

Asp Glu Glu Ala Trp Leu Pro Tyr Ser Arg Pro Ser Phe Leu Ser Arg
225 230 235 240

Gly Gln Gly Thr Ser Thr Cys Ser Thr Ala Gly Ser Asn Ser Ser Arg
245 250 255

Gly Ser Ser Ser Ser Arg Gly Ser Arg Gly Pro Gly Arg Ser Arg Ser
260 265 270

Arg Ser Gln Ser Arg Ser Gln Ser Gln Arg Pro Gly Gln Lys Arg Arg
275 280 285

Glu Glu Pro Arg
290

<210> 1667
<211> 521
<212> PRT
<213> Homo sapiens

<400> 1667
Lys Trp Lys Ser Gly Lys Asp Val Asp Ile Ser Leu Leu Val Ser Phe
1 5 10 15

Asn Lys Met Lys Lys Leu Thr Thr Asp Gly Lys Leu Ile Ala Arg Ala
20 25 30

Leu Arg Ser Ser Ala Val Val Glu Leu Asp Leu Glu Gly Thr Arg Ile
35 40 45

Arg Arg Lys Lys Pro Leu Gly Glu Arg Pro Lys Asp Glu Asp Glu Arg
50 55 60

Thr Val Tyr Val Glu Leu Leu Pro Lys Asn Val Asn His Ser Trp Ile
65 70 75 80

Glu Arg Val Phe Gly Lys Cys Gly Asn Val Val Tyr Ile Ser Ile Pro
85 90 95

His Tyr Lys Ser Thr Gly Asp Pro Lys Gly Phe Ala Phe Val Glu Phe

100 105 110

Glu Thr Lys Glu Gln Ala Ala Lys Ala Ile Glu Phe Leu Asn Asn Pro
115 120 125

Pro Glu Glu Ala Pro Arg Lys Pro Gly Ile Phe Pro Lys Thr Val Lys
130 135 140

Asn Lys Pro Ile Pro Ala Leu Arg Val Val Glu Glu Lys Lys Lys Lys
145 150 155 160

Lys Lys Lys Lys Gly Arg Met Lys Lys Glu Asp Asn Ile Gln Ala Lys
165 170 175

Glu Glu Asn Met Asp Thr Ser Asn Thr Ser Ile Ser Lys Met Lys Arg
180 185 190

Ser Arg Pro Thr Ser Glu Gly Ser Asp Ile Glu Ser Thr Glu Pro Gln
195 200 205

Lys Gln Cys Ser Lys Lys Lys Lys Lys Arg Asp Arg Val Glu Ala Ser
210 215 220

Ser Leu Pro Glu Val Arg Thr Gly Lys Arg Lys Arg Ser Ser Ser Glu
225 230 235 240

Asp Ala Glu Ser Leu Ala Pro Arg Ser Lys Val Lys Lys Ile Ile Gln
245 250 255

Lys Asp Ile Ile Lys Glu Ala Ser Glu Ala Ser Lys Glu Asn Arg Asp
260 265 270

Ile Glu Ile Ser Thr Glu Glu Glu Lys Asp Thr Gly Asp Leu Lys Asp
275 280 285

Ser Ser Leu Leu Lys Thr Lys Arg Lys His Lys Lys Lys His Lys Glu
290 295 300

Arg His Lys Met Gly Glu Glu Val Ile Pro Leu Arg Val Leu Ser Lys
305 310 315 320

Ser Glu Trp Met Asp Leu Lys Lys Glu Tyr Leu Ala Leu Gln Lys Ala
325 330 335

Ser Met Ala Ser Leu Lys Lys Thr Ile Ser Gln Ile Lys Ser Glu Ser
340 345 350

Glu Met Glu Thr Asp Ser Gly Val Pro Gln Asn Thr Gly Met Lys Asn
355 360 365

Glu Lys Thr Ala Asn Arg Glu Glu Cys Arg Thr Gln Glu Lys Val Asn

370 375 380

Ala Thr Gly Pro Gln Phe Val Ser Gly Val Ile Val Lys Ile Ile Ser
385 390 395 400

Thr Glu Pro Leu Pro Gly Arg Lys Gln Val Arg Asp Thr Leu Ala Ala
405 410 415

Ile Ser Glu Val Leu Tyr Val Asp Leu Leu Glu Gly Asp Thr Glu Cys
420 425 430

His Ala Arg Phe Lys Thr Pro Glu Asp Ala Gln Ala Val Ile Asn Ala
435 440 445

Tyr Thr Glu Ile Asn Lys Lys His Cys Trp Lys Leu Glu Ile Leu Ser
450 455 460

Gly Asp His Glu Gln Arg Tyr Trp Gln Lys Ile Leu Val Asp Arg Gln
465 470 475 480

Ala Lys Leu Asn Gln Pro Arg Glu Lys Lys Arg Gly Thr Glu Lys Leu
485 490 495

Ile Thr Lys Ala Glu Lys Ile Arg Leu Ala Lys Thr Gln Gln Ala Ser
500 505 510

Lys His Ile Arg Phe Ser Glu Tyr Asp
515 520

<210> 1668
<211> 306
<212> PRT
<213> Homo sapiens

<400> 1668
Phe Pro Glu Leu Ser Gly Arg Arg Ala Lys Ala Lys Gly Val Trp Arg
1 5 10 15

Ala Ala Pro Gly Ala Asn Met Pro Arg Tyr Ala Gln Leu Val Met Gly
20 25 30

Pro Ala Gly Ser Gly Lys Ser Thr Tyr Cys Ala Thr Met Val Gln His
35 40 45

Cys Glu Ala Leu Asn Arg Ser Val Gln Val Val Asn Leu Asp Pro Ala
50 55 60

Ala Glu His Phe Asn Tyr Ser Val Met Ala Asp Ile Arg Glu Leu Ile
65 70 75 80

Glu Val Asp Asp Val Met Glu Asp Asp Ser Leu Arg Phe Gly Pro Asn
85 90 95

Gly Gly Leu Val Phe Cys Met Glu Tyr Phe Ala Asn Asn Phe Asp Trp
100 105 110

Leu Glu Asn Cys Leu Gly His Val Glu Asp Asp Tyr Ile Leu Phe Asp
115 120 125

Cys Pro Gly Gln Ile Glu Leu Tyr Thr His Leu Pro Val Met Lys Gln
130 135 140

Leu Val Gln Gln Leu Glu Gln Trp Glu Phe Arg Val Cys Gly Val Phe
145 150 155 160

Leu Val Asp Ser Gln Phe Met Val Glu Ser Phe Lys Phe Ile Ser Gly
165 170 175

Ile Leu Ala Ala Leu Ser Ala Met Ile Ser Leu Glu Ile Pro Gln Val
180 185 190

Asn Ile Met Thr Lys Met Asp Leu Leu Ser Lys Lys Ala Lys Lys Glu
195 200 205

Ile Glu Lys Phe Leu Asp Pro Asp Met Tyr Ser Leu Leu Glu Asp Ser
210 215 220

Thr Ser Asp Leu Arg Ser Lys Lys Phe Lys Lys Leu Thr Lys Ala Ile
225 230 235 240

Cys Gly Leu Ile Asp Asp Tyr Ser Met Val Arg Phe Leu Pro Tyr Asp
245 250 255

Gln Ser Asp Glu Glu Ser Met Asn Ile Val Leu Gln His Ile Asp Phe
260 265 270

Ala Ile Gln Tyr Gly Glu Asp Leu Glu Phe Lys Glu Pro Lys Glu Arg
275 280 285

Glu Asp Glu Ser Ser Ser Met Phe Asp Glu Tyr Phe Gln Glu Cys Gln
290 295 300

Asp Glu
305

<210> 1669
<211> 412
<212> PRT

<213> Homo sapiens

<400> 1669

```
Glu Thr Glu Asp Val Met Glu Leu Leu Glu Glu Asp Leu Thr Cys Pro
1               5                   10                  15

Ile Cys Cys Ser Leu Phe Asp Asp Pro Arg Val Leu Pro Cys Ser His
            20                  25                  30

Asn Phe Cys Lys Lys Cys Leu Glu Gly Ile Leu Glu Gly Ser Val Arg
        35                  40                  45

Asn Ser Leu Trp Arg Pro Ala Pro Phe Lys Cys Pro Thr Cys Arg Lys
    50                  55                  60

Glu Thr Ser Ala Thr Gly Ile Asn Ser Leu Gln Val Asn Tyr Ser Leu
65                  70                  75                  80

Lys Gly Ile Val Glu Lys Tyr Asn Lys Ile Lys Ile Ser Pro Lys Met
                85                  90                  95

Pro Val Cys Lys Gly His Leu Gly Gln Pro Leu Asn Ile Phe Cys Leu
            100                 105                 110

Thr Asp Met Gln Leu Ile Cys Gly Ile Cys Ala Thr Arg Gly Glu His
        115                 120                 125

Thr Lys His Val Phe Cys Ser Ile Glu Asp Ala Tyr Ala Gln Glu Arg
    130                 135                 140

Asp Ala Phe Glu Ser Leu Phe Gln Ser Phe Glu Thr Trp Arg Arg Gly
145                 150                 155                 160

Asp Ala Leu Ser Arg Leu Asp Thr Leu Glu Thr Ser Lys Arg Lys Ser
                165                 170                 175

Leu Gln Leu Leu Thr Lys Asp Ser Asp Lys Val Lys Glu Phe Phe Glu
            180                 185                 190

Lys Leu Gln His Thr Leu Asp Gln Lys Lys Asn Glu Ile Leu Ser Asp
        195                 200                 205

Phe Glu Thr Met Lys Leu Ala Val Met Gln Ala Tyr Asp Pro Glu Ile
    210                 215                 220

Asn Lys Leu Asn Thr Ile Leu Gln Glu Gln Arg Met Ala Phe Asn Ile
225                 230                 235                 240

Ala Glu Ala Phe Lys Asp Val Ser Glu Pro Ile Val Phe Leu Gln Gln
                245                 250                 255
```

Met Gln Glu Phe Arg Glu Lys Ile Lys Val Ile Lys Glu Thr Pro Leu
260 265 270

Pro Pro Ser Asn Leu Pro Ala Ser Pro Leu Met Lys Asn Phe Asp Thr
275 280 285

Ser Gln Trp Glu Asp Ile Lys Leu Val Asp Val Asp Lys Leu Ser Leu
290 295 300

Pro Gln Asp Thr Gly Thr Phe Ile Ser Lys Ile Pro Trp Ser Phe Tyr
305 310 315 320

Lys Leu Phe Leu Leu Ile Leu Leu Leu Gly Leu Val Ile Val Phe Gly
325 330 335

Pro Thr Met Phe Leu Glu Trp Ser Leu Phe Asp Asp Leu Ala Thr Trp
340 345 350

Lys Gly Cys Leu Ser Asn Phe Ser Ser Tyr Leu Thr Lys Thr Ala Asp
355 360 365

Phe Ile Glu Gln Ser Val Phe Tyr Trp Glu Gln Val Thr Asp Gly Phe
370 375 380

Phe Ile Phe Asn Glu Arg Phe Lys Asn Phe Thr Leu Val Val Leu Asn
385 390 395 400

Asn Val Ala Glu Phe Val Cys Lys Tyr Lys Leu Leu
405 410

<210> 1670
<211> 89
<212> PRT
<213> Homo sapiens

<400> 1670
Pro Glu Glu Ala Leu Glu Pro Glu Ala Met Ala His Tyr Pro Thr Arg
1 5 10 15

Leu Lys Thr Arg Lys Thr Tyr Ser Trp Val Gly Arg Pro Leu Leu Asp
20 25 30

Arg Lys Leu His Tyr Gln Thr Tyr Arg Glu Met Cys Val Lys Thr Glu
35 40 45

Gly Cys Ser Thr Glu Ile His Ile Gln Ile Gly Gln Phe Val Leu Ile
50 55 60

Glu Gly Asp Asp Asp Glu Asn Pro Tyr Val Ala Lys Leu Leu Glu Leu

65 70 75 80

Phe Glu Asp Asp Ser Asp Pro Pro Pro
85

<210> 1671
<211> 218
<212> PRT
<213> Homo sapiens

<400> 1671
Asp Pro Arg Val Arg Ile Glu Ile Ile Thr Asp Arg Gln Ser Gly Lys
1 5 10 15

Lys Arg Gly Phe Gly Phe Val Thr Phe Asp Asp His Asp Pro Val Asp
20 25 30

Lys Ile Val Leu Gln Lys Tyr His Thr Ile Asn Gly His Asn Ala Glu
35 40 45

Val Arg Lys Ala Leu Ser Arg Gln Glu Met Gln Glu Val Gln Ser Ser
50 55 60

Arg Ser Gly Arg Gly Gly Asn Phe Gly Phe Gly Asp Ser Arg Gly Gly
65 70 75 80

Gly Gly Asn Phe Gly Pro Gly Pro Gly Ser Asn Phe Arg Gly Gly Ser
85 90 95

Asp Gly Tyr Gly Ser Gly Arg Gly Phe Gly Asp Gly Tyr Asn Gly Tyr
100 105 110

Gly Gly Gly Pro Gly Gly Gly Asn Phe Gly Gly Ser Pro Gly Tyr Gly
115 120 125

Gly Gly Arg Gly Gly Tyr Gly Gly Gly Gly Pro Gly Tyr Gly Asn Gln
130 135 140

Gly Gly Gly Tyr Gly Gly Gly Tyr Asp Asn Tyr Gly Gly Gly Asn Tyr
145 150 155 160

Gly Ser Gly Asn Tyr Asn Asp Phe Gly Asn Tyr Asn Gln Gln Pro Ser
165 170 175

Asn Tyr Gly Pro Met Lys Ser Gly Asn Phe Gly Gly Ser Arg Asn Met
180 185 190

Gly Gly Pro Tyr Gly Gly Gly Asn Tyr Gly Pro Gly Gly Ser Gly Gly
195 200 205

Ser Gly Gly Tyr Gly Gly Arg Ser Arg Tyr
210 215

<210> 1672
<211> 575
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (186)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (555)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1672
Glu Glu Leu Arg Val Arg Glu His Val Thr Gly Gly Ile Cys Gly Gly
1 5 10 15

Ser Gln Met Met Val Val Leu Leu Gly Ala Thr Thr Leu Val Leu Val
20 25 30

Ala Val Ala Pro Trp Val Leu Ser Ala Ala Ala Gly Gly Lys Asn Leu
35 40 45

Lys Ser Pro Gln Lys Val Glu Val Asp Ile Ile Asp Asp Asn Phe Ile
50 55 60

Leu Arg Trp Asn Arg Ser Asp Glu Ser Val Gly Asn Val Thr Phe Ser
65 70 75 80

Phe Asp Tyr Gln Lys Thr Gly Met Asp Asn Trp Ile Lys Leu Ser Gly
85 90 95

Cys Gln Asn Ile Thr Ser Thr Lys Cys Asn Phe Ser Ser Leu Lys Leu
100 105 110

Asn Val Tyr Glu Glu Ile Lys Leu Arg Ile Arg Ala Glu Lys Glu Asn
115 120 125

Thr Ser Ser Trp Tyr Glu Val Asp Ser Phe Thr Pro Phe Arg Lys Ala
130 135 140

Gln Ile Gly Pro Pro Glu Val His Leu Glu Ala Glu Asp Lys Ala Ile
145 150 155 160

```
Val Ile His Ile Ser Pro Gly Thr Lys Asp Ser Val Met Trp Ala Leu
            165                 170                 175

Asp Gly Leu Ser Phe Thr Tyr Ser Leu Xaa Ile Trp Lys Asn Ser Ser
        180                 185                 190

Gly Val Glu Glu Arg Ile Glu Asn Ile Tyr Ser Arg His Lys Ile Tyr
    195                 200                 205

Lys Leu Ser Pro Glu Thr Thr Tyr Cys Leu Lys Val Lys Ala Ala Leu
    210                 215                 220

Leu Thr Ser Trp Lys Ile Gly Val Tyr Ser Pro Val His Cys Ile Lys
225                 230                 235                 240

Thr Thr Val Glu Asn Glu Leu Pro Pro Pro Glu Asn Ile Glu Val Ser
            245                 250                 255

Val Gln Asn Gln Asn Tyr Val Leu Lys Trp Asp Tyr Thr Tyr Ala Asn
        260                 265                 270

Met Thr Phe Gln Val Gln Trp Leu His Ala Phe Leu Lys Arg Asn Pro
    275                 280                 285

Gly Asn His Leu Tyr Lys Trp Lys Gln Ile Pro Asp Cys Glu Asn Val
    290                 295                 300

Lys Thr Thr Gln Cys Val Phe Pro Gln Asn Val Phe Gln Lys Gly Ile
305                 310                 315                 320

Tyr Leu Leu Arg Val Gln Ala Ser Asp Gly Asn Asn Thr Ser Phe Trp
            325                 330                 335

Ser Glu Glu Ile Lys Phe Asp Thr Glu Ile Gln Ala Phe Leu Leu Pro
        340                 345                 350

Pro Val Phe Asn Ile Arg Ser Leu Ser Asp Ser Phe His Ile Tyr Ile
    355                 360                 365

Gly Ala Pro Lys Gln Ser Gly Asn Thr Pro Val Ile Gln Asp Tyr Pro
    370                 375                 380

Leu Ile Tyr Glu Ile Ile Phe Trp Glu Asn Thr Ser Asn Ala Glu Arg
385                 390                 395                 400

Lys Ile Ile Glu Lys Lys Thr Asp Val Thr Val Pro Asn Leu Lys Pro
            405                 410                 415

Leu Thr Val Tyr Cys Val Lys Ala Arg Ala His Thr Met Asp Glu Lys
        420                 425                 430
```

Leu Asn Lys Ser Ser Val Phe Ser Asp Ala Val Cys Glu Lys Thr Lys
435 440 445

Pro Gly Asn Thr Ser Lys Ile Trp Leu Ile Val Gly Ile Cys Ile Ala
450 455 460

Leu Phe Ala Leu Pro Phe Val Ile Tyr Ala Ala Lys Val Phe Leu Arg
465 470 475 480

Cys Ile Asn Tyr Val Phe Phe Pro Ser Leu Lys Pro Ser Ser Ser Ile
485 490 495

Asp Glu Tyr Phe Ser Glu Gln Pro Leu Lys Asn Leu Leu Leu Ser Thr
500 505 510

Ser Glu Glu Gln Ile Glu Lys Cys Phe Ile Ile Glu Asn Ile Ser Thr
515 520 525

Ile Ala Thr Val Glu Glu Thr Asn Gln Thr Asp Glu Asp His Lys Lys
530 535 540

Tyr Ser Ser Gln Thr Ser Gln Asp Ser Gly Xaa Tyr Ser Asn Glu Asp
545 550 555 560

Glu Ser Glu Ser Lys Thr Ser Glu Glu Leu Gln Gln Asp Phe Val
565 570 575

<210> 1673
<211> 571
<212> PRT
<213> Homo sapiens

<400> 1673
Asp Ala Trp Glu Leu Ser Arg Gly Gly Pro Phe Glu Arg Ile Ala Leu
1 5 10 15

Gln Pro Leu Ile Pro Pro Ala Ser Pro Pro Val Glu Ala Gln Ala Arg
20 25 30

Phe Ala Ala Phe Ser Leu Cys Leu Ile Thr Met Ser Thr Asn Glu Asn
35 40 45

Ala Asn Thr Pro Ala Ala Arg Leu His Arg Phe Lys Asn Lys Gly Lys
50 55 60

Asp Ser Thr Glu Met Arg Arg Arg Arg Ile Glu Val Asn Val Glu Leu
65 70 75 80

Arg Lys Ala Lys Lys Asp Asp Gln Met Leu Lys Arg Arg Asn Val Ser
85 90 95

Ser Phe Pro Asp Asp Ala Thr Ser Pro Leu Gln Glu Asn Arg Asn Asn
100 105 110

Gln Gly Thr Val Asn Trp Ser Val Asp Asp Ile Val Lys Gly Ile Asn
115 120 125

Ser Ser Asn Val Glu Asn Gln Leu Gln Ala Thr Gln Ala Ala Arg Lys
130 135 140

Leu Leu Ser Arg Glu Lys Gln Pro Pro Ile Asp Asn Ile Ile Arg Ala
145 150 155 160

Gly Leu Ile Pro Lys Phe Val Ser Phe Leu Gly Arg Thr Asp Cys Ser
165 170 175

Pro Ile Gln Phe Glu Ser Ala Trp Ala Leu Thr Asn Ile Ala Ser Gly
180 185 190

Thr Ser Glu Gln Thr Lys Ala Val Val Asp Gly Gly Ala Ile Pro Ala
195 200 205

Phe Ile Ser Leu Leu Ala Ser Pro His Ala His Ile Ser Glu Gln Ala
210 215 220

Val Trp Ala Leu Gly Asn Ile Ala Gly Asp Gly Ser Val Phe Arg Asp
225 230 235 240

Leu Val Ile Lys Tyr Gly Ala Val Asp Pro Leu Leu Ala Leu Leu Ala
245 250 255

Val Pro Asp Met Ser Ser Leu Ala Cys Gly Tyr Leu Arg Asn Leu Thr
260 265 270

Trp Thr Leu Ser Asn Leu Cys Arg Asn Lys Asn Pro Ala Pro Pro Ile
275 280 285

Asp Ala Val Glu Gln Ile Leu Pro Thr Leu Val Arg Leu Leu His His
290 295 300

Asp Asp Pro Glu Val Leu Ala Asp Thr Cys Trp Ala Ile Ser Tyr Leu
305 310 315 320

Thr Asp Gly Pro Asn Glu Arg Ile Gly Met Val Val Lys Thr Gly Val
325 330 335

Val Pro Gln Leu Val Lys Leu Leu Gly Ala Ser Glu Leu Pro Ile Val
340 345 350

Thr Pro Ala Leu Arg Ala Ile Gly Asn Ile Val Thr Gly Thr Asp Glu
355 360 365

Gln Thr Gln Val Val Ile Asp Ala Gly Ala Leu Ala Val Phe Pro Ser
370 375 380

Leu Leu Thr Asn Pro Lys Thr Asn Ile Gln Lys Glu Ala Thr Trp Thr
385 390 395 400

Met Ser Asn Ile Thr Ala Gly Arg Gln Asp Gln Ile Gln Gln Val Val
405 410 415

Asn His Gly Leu Val Pro Phe Leu Val Ser Val Leu Ser Lys Ala Asp
420 425 430

Phe Lys Thr Gln Lys Glu Ala Val Trp Ala Val Thr Asn Tyr Thr Ser
435 440 445

Gly Gly Thr Val Glu Gln Ile Val Tyr Leu Val His Cys Gly Ile Ile
450 455 460

Glu Pro Leu Met Asn Leu Leu Thr Ala Lys Asp Thr Lys Ile Ile Leu
465 470 475 480

Val Ile Leu Asp Ala Ile Ser Asn Ile Phe Gln Ala Ala Glu Lys Leu
485 490 495

Gly Glu Thr Glu Lys Leu Ser Ile Met Ile Glu Glu Cys Gly Gly Leu
500 505 510

Asp Lys Ile Glu Ala Leu Gln Asn His Glu Asn Glu Ser Val Tyr Lys
515 520 525

Ala Ser Leu Ser Leu Ile Glu Lys Tyr Phe Ser Val Glu Glu Glu Glu
530 535 540

Asp Gln Asn Val Val Pro Glu Thr Thr Ser Glu Gly Tyr Thr Phe Gln
545 550 555 560

Val Gln Asp Gly Ala Pro Gly Thr Phe Asn Phe
565 570

<210> 1674
<211> 375
<212> PRT
<213> Homo sapiens

<220>
<221> SITE

<222> (338)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (340)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (356)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (372)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1674
```
Ser Glu Pro Leu Gly Arg Phe Leu Leu Phe Arg Arg Leu His Ser Val
1               5                   10                  15

Pro Arg Gly Ser Ala Leu Cys Ala Met Asp Gly Ile Val Pro Asp Ile
            20                  25                  30

Ala Val Gly Thr Lys Arg Gly Ser Asp Glu Leu Phe Ser Thr Cys Val
        35                  40                  45

Thr Asn Gly Pro Phe Ile Met Ser Ser Asn Ser Ala Ser Ala Ala Asn
    50                  55                  60

Gly Asn Asp Ser Lys Lys Phe Lys Gly Asp Ser Arg Ser Ala Gly Val
65                  70                  75                  80

Pro Ser Arg Val Ile His Ile Arg Lys Leu Pro Ile Asp Val Thr Glu
                85                  90                  95

Gly Glu Val Ile Ser Leu Gly Leu Pro Phe Gly Lys Val Thr Asn Leu
            100                 105                 110

Leu Met Leu Lys Gly Lys Asn Gln Ala Phe Ile Glu Met Asn Thr Glu
        115                 120                 125

Glu Ala Ala Asn Thr Met Val Asn Tyr Tyr Thr Ser Val Thr Pro Val
    130                 135                 140

Leu Arg Gly Gln Pro Ile Tyr Ile Gln Phe Ser Asn His Lys Glu Leu
145                 150                 155                 160

Lys Thr Asp Ser Ser Pro Asn Gln Ala Arg Ala Gln Ala Ala Leu Gln
                165                 170                 175
```

```
Ala Val Asn Ser Val Gln Ser Gly Asn Leu Ala Leu Ala Ala Ser Ala
            180                 185                 190

Ala Ala Val Asp Ala Gly Met Ala Met Ala Gly Gln Ser Pro Val Leu
        195                 200                 205

Arg Ile Ile Val Glu Asn Leu Phe Tyr Pro Val Thr Leu Asp Val Leu
    210                 215                 220

His Gln Ile Phe Ser Lys Phe Gly Thr Val Leu Lys Ile Ile Thr Phe
225                 230                 235                 240

Thr Lys Asn Asn Gln Phe Gln Ala Leu Leu Gln Tyr Ala Asp Pro Val
                245                 250                 255

Ser Ala Gln His Ala Lys Leu Ser Leu Asp Gly Gln Asn Ile Tyr Asn
            260                 265                 270

Ala Cys Cys Thr Leu Arg Ile Asp Phe Ser Lys Leu Thr Ser Leu Asn
        275                 280                 285

Val Lys Tyr Asn Asn Asp Lys Ser Arg Asp Tyr Thr Arg Pro Asp Leu
    290                 295                 300

Pro Ser Gly Asp Ser Gln Pro Ser Leu Asp Gln Thr Met Ala Ala Ala
305                 310                 315                 320

Phe Gly Ala Pro Gly Ile Ile Ser Ala Ser Pro Tyr Ala Gly Ala Gly
                325                 330                 335

Phe Xaa Pro Xaa Phe Ala Ile Pro Gln Ala Ala Gly Phe Pro Phe Arg
            340                 345                 350

Thr Ser Thr Xaa Pro Trp Pro Leu Ala Arg Thr Glu Pro Arg Trp Leu
        355                 360                 365

Leu Ile Ala Xaa Gly Thr Ala
    370                 375
```

<210> 1675
<211> 193
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (190)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1675

```
Pro Arg Phe Ser Val Phe Cys Ser Arg Leu Arg Arg Glu Arg Arg Arg
1               5                   10                  15

Arg Trp Arg Leu Arg Arg Glu Thr Ala Arg Arg Ser Glu Arg Ala Leu
            20                  25                  30

Arg Leu Pro Pro Pro Gln Gln Arg Arg Arg Arg Arg His Arg Ser Ser
        35                  40                  45

Pro Asp Arg Ser Arg Ser Leu Pro Ser Pro Ala Ile Arg Ala Pro Leu
    50                  55                  60

Pro Asp Leu Tyr Pro Phe Gly Thr Met Arg Gly Gly Gly Phe Gly Asp
65                  70                  75                  80

Arg Asp Arg Asp Arg Asp Arg Gly Gly Phe Gly Ala Arg Gly Gly Gly
                85                  90                  95

Gly Leu Pro Pro Lys Lys Phe Gly Asn Pro Gly Glu Arg Leu Arg Lys
            100                 105                 110

Lys Lys Trp Asp Leu Ser Glu Leu Pro Lys Phe Glu Lys Asn Phe Tyr
        115                 120                 125

Val Glu His Pro Glu Val Ala Arg Leu Thr Pro Tyr Glu Val Asp Glu
    130                 135                 140

Leu Arg Arg Lys Lys Glu Ile Thr Val Arg Gly Gly Asp Val Cys Pro
145                 150                 155                 160

Lys Pro Val Phe Ala Phe His His Ala Asn Phe Pro Gln Tyr Val Met
                165                 170                 175

Asp Val Leu Met Asp Ser Arg Thr Leu Gln Asp Asn Ile Xaa Gly Arg
            180                 185                 190

Leu
```

<210> 1676
<211> 365
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (47)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (220)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1676

```
His Glu Gly Met Phe Pro Pro Phe Lys Val Arg Cys Ser Gly Leu Asp
  1               5                  10                  15

Lys Lys Ala Lys Tyr Ile Leu Leu Met Asp Ile Ile Ala Ala Asp Asp
             20                  25                  30

Cys Arg Tyr Lys Phe His Asn Ser Arg Trp Met Val Ala Gly Xaa Ala
         35                  40                  45

Asp Pro Glu Met Pro Lys Arg Met Tyr Ile His Pro Asp Ser Pro Ala
     50                  55                  60

Thr Gly Glu Gln Trp Met Ser Lys Val Val Thr Phe His Lys Leu Lys
 65                  70                  75                  80

Leu Thr Asn Asn Ile Ser Asp Lys His Gly Phe Thr Leu Ala Phe Pro
                 85                  90                  95

Ser Asp His Ala Thr Trp Gln Gly Asn Tyr Ser Phe Gly Thr Gln Thr
            100                 105                 110

Ile Leu Asn Ser Met His Lys Tyr Gln Pro Arg Phe His Ile Val Arg
        115                 120                 125

Ala Asn Asp Ile Leu Lys Leu Pro Tyr Ser Thr Phe Arg Thr Tyr Leu
    130                 135                 140

Phe Pro Glu Thr Glu Phe Ile Ala Val Thr Ala Tyr Gln Asn Asp Lys
145                 150                 155                 160

Ile Thr Gln Leu Lys Ile Asp Asn Asn Pro Phe Ala Lys Gly Phe Arg
                165                 170                 175

Asp Thr Gly Asn Gly Arg Arg Glu Lys Arg Lys Gln Leu Thr Leu Gln
            180                 185                 190

Ser Met Arg Val Phe Asp Glu Arg His Lys Lys Glu Asn Gly Thr Ser
        195                 200                 205

Asp Glu Ser Ser Ser Glu Gln Ala Ala Phe Asn Xaa Phe Ala Gln Ala
    210                 215                 220

Ser Ser Pro Ala Ala Ser Thr Val Gly Thr Ser Asn Leu Lys Asp Leu
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225 230 235 240

Cys Pro Ser Glu Gly Glu Ser Asp Ala Glu Ala Glu Ser Lys Glu Glu
245 250 255

His Gly Pro Glu Ala Cys Asp Ala Ala Lys Ile Ser Thr Thr Thr Ser
260 265 270

Glu Glu Pro Cys Arg Asp Lys Gly Ser Pro Ala Val Lys Ala His Leu
275 280 285

Phe Ala Ala Glu Arg Pro Arg Asp Ser Gly Arg Leu Asp Lys Ala Ser
290 295 300

Pro Asp Ser Arg His Ser Pro Ala Thr Ile Ser Ser Ser Thr Arg Gly
305 310 315 320

Leu Gly Ala Glu Glu Arg Arg Ser Pro Val Arg Glu Gly Thr Ala Pro
325 330 335

Ala Lys Val Glu Glu Ala Arg Ala Leu Pro Gly Lys Glu Ala Phe Ala
340 345 350

Pro Leu Thr Val Gln Thr Asp Ala Ala Ala Ser Leu Phe
355 360 365

<210> 1677
<211> 668
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (70)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (71)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1677
His Met Val Leu Arg Pro Phe Leu Leu Arg Arg Ile Lys Ala Asp Val
1 5 10 15

Glu Lys Ser Leu Pro Pro Lys Lys Glu Val Lys Ile Tyr Val Gly Leu
20 25 30

Ser Lys Met Gln Arg Glu Trp Tyr Thr Arg Ile Leu Met Lys Asp Ile

35 40 45

Asp Ile Leu Asn Ser Ala Gly Lys Met Asp Lys Met Arg Leu Leu Asn
50 55 60

Ile Leu Met Gln Leu Xaa Xaa Cys Cys Asn His Pro Tyr Leu Phe Asp
65 70 75 80

Gly Ala Glu Pro Gly Pro Pro Tyr Thr Thr Asp Met His Leu Val Thr
85 90 95

Asn Ser Gly Lys Met Val Val Leu Asp Lys Leu Leu Pro Lys Leu Lys
100 105 110

Glu Gln Gly Ser Arg Val Leu Ile Phe Ser Gln Met Thr Arg Val Leu
115 120 125

Asp Ile Leu Glu Asp Tyr Cys Met Trp Arg Asn Tyr Glu Tyr Cys Arg
130 135 140

Leu Asp Gly Gln Thr Pro His Asp Glu Arg Gln Asp Ser Ile Asn Ala
145 150 155 160

Tyr Asn Glu Pro Asn Ser Thr Lys Phe Val Phe Met Leu Ser Thr Arg
165 170 175

Ala Gly Gly Leu Gly Ile Asn Leu Ala Thr Ala Asp Val Val Ile Leu
180 185 190

Tyr Asp Ser Asp Trp Asn Pro Gln Val Asp Leu Gln Ala Met Asp Arg
195 200 205

Ala His Arg Ile Gly Gln Thr Lys Thr Val Arg Val Phe Arg Phe Ile
210 215 220

Thr Asp Asn Thr Val Glu Glu Arg Ile Val Glu Arg Ala Glu Met Lys
225 230 235 240

Leu Arg Leu Asp Ser Ile Val Ile Gln Gln Gly Arg Leu Val Asp Gln
245 250 255

Asn Leu Asn Lys Ile Gly Lys Asp Glu Met Leu Gln Met Ile Arg His
260 265 270

Gly Ala Thr His Val Phe Ala Ser Lys Glu Ser Glu Ile Thr Asp Glu
275 280 285

Asp Ile Asp Gly Ile Leu Glu Arg Gly Ala Lys Lys Thr Ala Glu Met
290 295 300

Asn Glu Lys Leu Ser Lys Met Gly Glu Ser Ser Leu Arg Asn Phe Thr

305 310 315 320

Met Asp Thr Glu Ser Ser Val Tyr Asn Phe Glu Gly Glu Asp Tyr Arg
325 330 335

Glu Lys Gln Lys Ile Ala Phe Thr Glu Trp Ile Glu Pro Pro Lys Arg
340 345 350

Glu Arg Lys Ala Asn Tyr Ala Val Asp Ala Tyr Phe Arg Glu Ala Leu
355 360 365

Arg Val Ser Glu Pro Lys Ala Pro Lys Ala Pro Arg Pro Pro Lys Gln
370 375 380

Pro Asn Val Gln Asp Phe Gln Phe Phe Pro Pro Arg Leu Phe Glu Leu
385 390 395 400

Leu Glu Lys Glu Ile Leu Phe Tyr Arg Lys Thr Ile Gly Tyr Lys Val
405 410 415

Pro Arg Asn Pro Glu Leu Pro Asn Ala Ala Gln Ala Gln Lys Glu Glu
420 425 430

Gln Leu Lys Ile Asp Glu Ala Glu Ser Leu Asn Asp Glu Glu Leu Glu
435 440 445

Glu Lys Glu Lys Leu Leu Thr Gln Gly Phe Thr Asn Trp Asn Lys Arg
450 455 460

Asp Phe Asn Gln Phe Ile Lys Ala Asn Glu Lys Trp Gly Arg Asp Asp
465 470 475 480

Ile Glu Asn Ile Ala Arg Glu Val Glu Gly Lys Thr Pro Glu Glu Val
485 490 495

Ile Glu Tyr Ser Ala Val Phe Trp Glu Arg Cys Asn Glu Leu Gln Asp
500 505 510

Ile Glu Lys Ile Met Ala Gln Ile Glu Arg Gly Glu Ala Arg Ile Gln
515 520 525

Arg Arg Ile Ser Ile Lys Lys Ala Leu Asp Thr Lys Ile Gly Arg Tyr
530 535 540

Lys Ala Pro Phe His Gln Leu Arg Ile Ser Tyr Gly Thr Asn Lys Gly
545 550 555 560

Lys Asn Tyr Thr Glu Glu Glu Asp Arg Phe Leu Ile Cys Met Leu His
565 570 575

Lys Leu Gly Phe Asp Lys Glu Asn Val Tyr Asp Glu Leu Arg Gln Cys

580 585 590

Ile Arg Asn Ser Pro Gln Phe Arg Phe Asp Trp Phe Leu Lys Ser Arg
595 600 605

Thr Ala Met Glu Leu Gln Arg Arg Cys Asn Thr Leu Ile Thr Leu Ile
610 615 620

Glu Arg Glu Asn Met Glu Leu Glu Glu Lys Glu Lys Ala Glu Lys Lys
625 630 635 640

Lys Arg Gly Pro Lys Pro Ser Thr Gln Lys Arg Lys Met Asp Gly Ala
645 650 655

Pro Asp Gly Arg Gly Arg Lys Lys Lys Leu Lys Leu
660 665

<210> 1678
<211> 237
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (8)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1678
Gly Arg Lys Arg Pro Leu Pro Xaa Lys Gly Trp Ser Arg Ala Gly Ala
1 5 10 15

Met Trp Ser Ala Gly Arg Gly Gly Ala Ala Trp Pro Val Leu Leu Gly
20 25 30

Leu Leu Leu Ala Leu Leu Val Pro Gly Gly Gly Ala Ala Lys Thr Gly
35 40 45

Ala Glu Leu Val Thr Cys Gly Ser Val Leu Lys Leu Leu Asn Thr His
50 55 60

His Arg Val Arg Leu His Ser His Asp Ile Lys Tyr Gly Ser Gly Ser
65 70 75 80

Gly Gln Gln Ser Val Thr Gly Val Glu Ala Ser Asp Asp Ala Asn Ser
85 90 95

Tyr Trp Arg Ile Arg Gly Gly Ser Glu Gly Gly Cys Pro Arg Gly Ser
100 105 110

Pro Val Arg Cys Gly Gln Ala Val Arg Leu Thr His Val Leu Thr Gly
115 120 125

Lys Asn Leu His Thr His His Phe Pro Ser Pro Leu Ser Asn Asn Gln
130 135 140

Glu Val Ser Ala Phe Gly Glu Asp Gly Glu Gly Asp Asp Leu Asp Leu
145 150 155 160

Trp Thr Val Arg Cys Ser Gly Gln His Trp Glu Arg Glu Ala Ala Val
165 170 175

Arg Phe Gln His Val Gly Thr Ser Val Phe Leu Ser Val Thr Gly Glu
180 185 190

Gln Tyr Gly Ser Pro Ile Arg Gly Gln His Glu Val His Gly Met Pro
195 200 205

Ser Ala Asn Thr His Asn Thr Trp Lys Ala Met Glu Gly Ile Phe Ile
210 215 220

Lys Pro Ser Val Glu Pro Ser Ala Gly His Asp Glu Leu
225 230 235

<210> 1679
<211> 168
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (101)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (118)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (144)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1679
Glu His Tyr Ser Cys Phe Leu Phe Gln Asn Pro Thr Pro His Pro Ser
1 5 10 15

Cys Asp Ala Met Ser Thr Asn Ile Cys Ser Phe Lys Asp Arg Cys Val

20 25 30

Ser Ile Leu Cys Cys Lys Phe Cys Lys Gln Val Leu Ser Ser Arg Gly
35 40 45

Met Lys Ala Val Leu Leu Ala Asp Thr Glu Ile Asp Leu Phe Ser Thr
50 55 60

Asp Ile Pro Pro Thr Asn Ala Val Asp Phe Thr Gly Arg Cys Tyr Phe
65 70 75 80

Thr Lys Ile Cys Lys Cys Lys Leu Lys Asp Ile Ala Cys Leu Lys Cys
85 90 95

Gly Asn Ile Val Xaa Tyr His Val Ile Val Pro Cys Ser Ser Cys Leu
100 105 110

Leu Ser Cys Asn Asn Xaa His Phe Trp Met Phe His Ser Gln Ala Val
115 120 125

Tyr Asp Ile Asn Arg Leu Asp Ser Thr Gly Val Asn Val Leu Leu Xaa
130 135 140

Gly Asn Leu Pro Glu Ile Glu Glu Ser Thr Asp Glu Asp Val Leu Asn
145 150 155 160

Ile Ser Ala Glu Glu Cys Ile Arg
165

<210> 1680
<211> 519
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (321)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (332)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (333)
<223> Xaa equals any of the naturally occurring L-amino acids

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<220>
<221> SITE
<222> (337)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (511)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1680
Lys Thr Glu Arg Lys Gln Glu Gly Arg Ser Leu Leu Phe Glu Phe Val
1               5                   10                  15

Ala Arg Glu Ala Leu Gln Ser Gly Leu Ala Leu Gly Tyr Trp Leu Gly
            20                  25                  30

Pro Met Leu Gly Thr Leu Arg Ala Met Glu Gly Glu Asp Val Glu Asp
        35                  40                  45

Asp Gln Leu Leu Gln Lys Leu Arg Ala Ser Arg Arg Arg Phe Gln Arg
    50                  55                  60

Arg Met Gln Arg Leu Ile Glu Lys Tyr Asn Gln Pro Phe Glu Asp Thr
65                  70                  75                  80

Pro Val Val Gln Met Ala Thr Leu Thr Tyr Glu Thr Pro Gln Gly Leu
                85                  90                  95

Arg Ile Trp Gly Gly Arg Leu Ile Lys Glu Arg Asn Lys Gly Glu Ile
            100                 105                 110

Gln Asp Ser Ser Met Lys Pro Ala Asp Arg Thr Asp Gly Ser Val Gln
        115                 120                 125

Ala Ala Ala Trp Gly Pro Glu Leu Pro Ser His Arg Thr Val Leu Gly
    130                 135                 140

Ala Asp Ser Lys Ser Gly Glu Val Asp Ala Thr Ser Asp Gln Glu Glu
145                 150                 155                 160

Ser Val Ala Trp Ala Leu Ala Pro Ala Val Pro Gln Ser Pro Leu Lys
                165                 170                 175

Asn Glu Leu Arg Arg Lys Tyr Leu Thr Gln Val Asp Ile Leu Leu Gln
            180                 185                 190

Gly Ala Glu Tyr Phe Glu Cys Ala Gly Asn Arg Ala Gly Arg Asp Val
        195                 200                 205

Arg Val Thr Pro Leu Pro Ser Leu Ala Ser Pro Ala Val Pro Ala Pro
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210 215 220

Gly Tyr Cys Ser Arg Ile Ser Gly Lys Ser Pro Gly Asp Pro Ala Lys
225 230 235 240

Pro Ala Ser Ser Pro Arg Glu Trp Asp Pro Leu His Pro Ser Ser Thr
245 250 255

Asp Met Ala Leu Val Pro Arg Asn Asp Ser Leu Ser Leu Gln Glu Thr
260 265 270

Ser Ser Ser Ser Phe Leu Ser Ser Gln Pro Phe Glu Asp Asp Asp Ile
275 280 285

Cys Asn Val Thr Ile Ser Asp Leu Tyr Ala Gly Met Leu His Ser Met
290 295 300

Ser Arg Leu Leu Ser Thr Lys Pro Ser Ser Ile Ile Ser Thr Lys Thr
305 310 315 320

Xaa Ile Met Gln Asn Trp Asn Ser Arg Arg Arg Xaa Xaa Tyr Lys Ser
325 330 335

Xaa Met Asn Lys Thr Tyr Cys Lys Gly Ala Arg Arg Ser Gln Arg Ser
340 345 350

Ser Lys Glu Asn Phe Ile Pro Cys Ser Glu Pro Val Lys Gly Thr Gly
355 360 365

Ala Leu Arg Asp Cys Lys Asn Val Leu Asp Val Ser Cys Arg Lys Thr
370 375 380

Gly Leu Lys Leu Glu Lys Ala Phe Leu Glu Val Asn Arg Pro Gln Ile
385 390 395 400

His Lys Leu Asp Pro Ser Trp Lys Glu Arg Lys Val Thr Pro Ser Lys
405 410 415

Tyr Ser Ser Leu Ile Tyr Phe Asp Ser Ser Ala Thr Tyr Asn Leu Asp
420 425 430

Glu Glu Asn Arg Phe Arg Thr Leu Lys Trp Leu Ile Ser Pro Val Lys
435 440 445

Ile Val Ser Arg Pro Thr Ile Arg Gln Gly His Gly Glu Asn Arg Gln
450 455 460

Arg Glu Ile Glu Ile Arg Phe Asp Gln Leu His Arg Glu Tyr Cys Leu
465 470 475 480

Ser Pro Arg Asn Gln Pro Arg Arg Met Cys Leu Pro Asp Ser Trp Ala

485 490 495

Met Asn Met Tyr Arg Gly Gly Pro Ala Lys Ser Trp Trp Pro Xaa Gly
500 505 510

Leu Lys Thr Arg Lys Leu Ser
515

<210> 1681
<211> 371
<212> PRT
<213> Homo sapiens

<400> 1681
Val Pro Cys Tyr Arg Arg Val Phe Ile Val Ser Ser Ser Gln Leu Gly
1 5 10 15

Glu Gln Leu Lys Gln Leu Val Pro Ala Ser Gly Leu Thr Val Met Asp
20 25 30

Leu Glu Ala Glu Gly Thr Cys Leu Arg Phe Ser Pro Leu Met Thr Ala
35 40 45

Ala Val Leu Gly Thr Arg Gly Glu Asp Val Asp Gln Leu Val Ala Cys
50 55 60

Ile Glu Ser Lys Leu Pro Val Leu Cys Cys Thr Leu Gln Leu Arg Glu
65 70 75 80

Glu Phe Lys Gln Glu Val Glu Ala Thr Ala Gly Leu Leu Tyr Val Asp
85 90 95

Asp Pro Asn Trp Ser Gly Ile Gly Val Val Arg Tyr Glu His Ala Asn
100 105 110

Asp Asp Lys Ser Ser Leu Lys Ser Asp Pro Glu Gly Glu Asn Ile His
115 120 125

Ala Gly Leu Leu Lys Lys Leu Asn Glu Leu Glu Ser Asp Leu Thr Phe
130 135 140

Lys Ile Gly Pro Glu Tyr Lys Ser Met Lys Ser Cys Leu Tyr Val Gly
145 150 155 160

Met Ala Ser Asp Asn Val Asp Ala Ala Glu Leu Val Glu Thr Ile Ala
165 170 175

Ala Thr Ala Arg Glu Ile Glu Glu Asn Ser Arg Leu Leu Glu Asn Met
180 185 190

Thr Glu Val Val Arg Lys Gly Ile Gln Glu Ala Gln Val Glu Leu Gln
195 200 205

Lys Ala Ser Glu Glu Arg Leu Leu Glu Glu Gly Val Leu Arg Gln Ile
210 215 220

Pro Val Val Gly Ser Val Leu Asn Trp Phe Ser Pro Val Gln Ala Leu
225 230 235 240

Gln Lys Gly Arg Thr Phe Asn Leu Thr Ala Gly Ser Leu Glu Ser Thr
245 250 255

Glu Pro Ile Tyr Val Tyr Lys Ala Gln Gly Ala Gly Val Thr Leu Pro
260 265 270

Pro Thr Pro Ser Gly Ser Arg Thr Lys Gln Arg Leu Pro Gly Gln Lys
275 280 285

Pro Phe Lys Arg Ser Leu Arg Gly Ser Asp Ala Leu Ser Glu Thr Ser
290 295 300

Ser Val Ser His Ile Glu Asp Leu Glu Lys Val Glu Arg Leu Ser Ser
305 310 315 320

Gly Pro Glu Gln Ile Thr Leu Glu Ala Ser Ser Thr Glu Gly His Pro
325 330 335

Gly Ala Pro Ser Pro Gln His Thr Asp Gln Thr Glu Ala Phe Gln Lys
340 345 350

Gly Val Pro His Pro Glu Asp Asp His Ser Gln Val Glu Gly Pro Glu
355 360 365

Ser Leu Arg
370

<210> 1682
<211> 238
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (2)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE

<222> (69)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (145)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (215)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (228)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1682
```
Ser Xaa Arg Gly Thr Ser Pro Ser Glu Phe Tyr Phe Met Phe Gln Gln
 1               5                  10                  15

Val Arg Val Lys Pro Gln Asp Phe Ala Ala Ile Thr Ile Pro Arg Ser
            20                  25                  30

Arg Gly Glu Ala Arg Val Gly Ala Gly Phe Arg Pro Met Leu Pro Ser
        35                  40                  45

Gln Gly Ala Pro Gln Arg Pro Leu Ser Thr Phe Ser Pro Ala Pro Lys
    50                  55                  60

Ala Thr Leu Ile Xaa Asn Ser Ile Gly Ser Leu Ser Lys Leu Arg Pro
65                  70                  75                  80

Gln Pro Leu Thr Phe Ser Pro Ser Trp Gly Gly Pro Lys Ser Leu Pro
                85                  90                  95

Val Pro Ala Pro Pro Gly Glu Met Gly Thr Thr Pro Ser Ala Pro Pro
            100                 105                 110

Gln Arg Asn Arg Arg Lys Ser Val His Arg Val Leu Ala Glu Leu Asp
        115                 120                 125

Asp Glu Ser Glu Pro Pro Glu Asn Pro Pro Pro Val Leu Met Glu Pro
    130                 135                 140

Xaa Lys Lys Leu Arg Val Asp Lys Ala Pro Leu Thr Pro Thr Gly Asn
145                 150                 155                 160

Arg Arg Gly Arg Pro Arg Lys Tyr Pro Val Ser Ala Pro Met Ala Pro
                165                 170                 175
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Pro Ala Val Gly Gly Gly Glu Pro Cys Ala Ala Pro Cys Cys Cys Leu
180 185 190

Pro Gln Glu Glu Thr Val Ala Trp Val Gln Cys Asp Gly Cys Asp Val
195 200 205

Trp Phe His Val Ala Cys Xaa Gly Cys Ser Ile Gln Ala Ala Arg Glu
210 215 220

Ala Asp Phe Xaa Cys Pro Gly Cys Arg Ala Gly Ile Gln Thr
225 230 235

<210> 1683
<211> 66
<212> PRT
<213> Homo sapiens

<400> 1683
Met Ile Ala Thr Glu Thr Gln Ser Ser Phe Phe Ala Arg Val Phe Trp
1 5 10 15

Gly Phe Cys Pro Lys Ile Tyr Pro Gly His Ser Ile Thr Ala Val Leu
20 25 30

Asp Val Tyr Pro Lys Leu Pro His His Pro Ser Thr His Ser Cys Thr
35 40 45

Phe Ile Tyr Leu Phe Cys Ser Ser Leu Gly Asp Arg Val Arg Leu Arg
50 55 60

Leu Gly
65

<210> 1684
<211> 119
<212> PRT
<213> Homo sapiens

<400> 1684
Trp Pro Leu Glu Phe Val Trp Pro Pro Pro Arg Glu Arg Glu Pro Gly
1 5 10 15

Asn Phe Ser Thr Glu Lys Gly Glu Ala Phe Gly Leu Cys Arg Val Arg
20 25 30

Val Ser Lys Cys Pro Ala Pro Ala Gly Met Glu Asp Pro Gln Ser Lys

35 40 45

Glu Pro Ala Gly Glu Ala Val Ala Leu Ala Leu Leu Glu Ser Pro Arg
50 55 60

Pro Glu Gly Gly Glu Glu Pro Pro Arg Pro Ser Pro Glu Glu Thr Gln
65 70 75 80

Gln Cys Lys Phe Asp Gly Gln Glu Thr Lys Gly Ser Lys Phe Ile Thr
85 90 95

Ser Ser Ala Ser Asp Phe Ser Asp Pro Val Tyr Lys Glu Ile Ala Ile
100 105 110

Thr Asn Gly Cys Ile Asn Arg
115

<210> 1685
<211> 91
<212> PRT
<213> Homo sapiens

<400> 1685
Ile Val Phe Leu Pro Glu Asp Ser Tyr Leu His Val Ser Gln Gly Leu
1 5 10 15

Gln Phe Phe Tyr Lys Phe Pro Tyr Pro Lys Phe Arg Ile His Val Lys
20 25 30

Tyr Phe Phe Gly Ala Lys Val Leu His Ser Trp Tyr Leu Leu Asp Trp
35 40 45

Lys Ser Val Ala Arg Cys Cys Leu Lys Leu Pro Tyr Cys Phe Phe Ile
50 55 60

Leu Tyr Leu Ala Leu Trp Leu Leu Asn Phe Leu Phe Leu Phe Glu Val
65 70 75 80

Ser Phe Lys Phe Ala Pro Met Leu Asn Tyr Leu
85 90

<210> 1686
<211> 141
<212> PRT
<213> Homo sapiens

<400> 1686

Glu Ala Val Ala Glu Val Ser Ser Leu Phe Pro Arg Leu Phe Gln Ile
1 5 10 15

Phe Val Ile Ala Val Val Ser Leu Val Ile Leu Pro Arg Ile Val Ile
20 25 30

Phe Arg Arg Met Ala Cys Tyr Asn Cys Gly Arg Gly Gly His Ile Ala
35 40 45

Lys Asp Cys Lys Glu Pro Lys Arg Glu Arg Glu Gln Cys Cys Tyr Asn
50 55 60

Cys Gly Lys Pro Gly His Leu Ala Arg Asp Cys Asp His Ala Asp Glu
65 70 75 80

Gln Lys Cys Tyr Ser Cys Gly Glu Phe Gly His Ile Gln Lys Asp Cys
85 90 95

Thr Lys Val Lys Cys Tyr Arg Cys Gly Glu Thr Gly His Val Ala Ile
100 105 110

Asn Cys Ser Lys Thr Ser Glu Val Asn Cys Tyr Arg Cys Gly Glu Ser
115 120 125

Gly His Leu Ala Arg Glu Cys Thr Ile Glu Ala Thr Ala
130 135 140

<210> 1687
<211> 83
<212> PRT
<213> Homo sapiens

<400> 1687
Phe Trp Ile Pro Trp Trp Arg Lys Ile Lys His Ser Gly Leu Ala Ala
1 5 10 15

Asn Asp Ala Ser Val Thr Ala Gly Val Phe Met Ser Ser Arg Gly His
20 25 30

Ser Thr Leu Pro Arg Thr Leu Met Ala Pro Arg Met Ile Ser Glu Gly
35 40 45

Asp Ile Gly Gly Ile Ala Gln Ile Thr Ser Ser Leu Phe Leu Gly Arg
50 55 60

Gly Ser Val Ala Ser Asn Arg His Leu Leu Gln Ala Arg Gly His His
65 70 75 80

Leu His Cys

<210> 1688
<211> 153
<212> PRT
<213> Homo sapiens

<400> 1688
Arg Arg His Pro Ala Val Val Ala Glu Val Ser Pro Ala Tyr Phe Leu
1 5 10 15

Phe Pro Ser Glu Arg Ala Ala Ala Leu Ala Ala Cys Ala Ala Met Ala
20 25 30

Lys Ile Lys Ala Arg Asp Leu Arg Gly Lys Lys Lys Glu Glu Leu Leu
35 40 45

Lys Gln Leu Asp Asp Leu Lys Val Glu Leu Ser Gln Leu Arg Val Ala
50 55 60

Lys Val Thr Gly Gly Ala Ala Ser Lys Leu Ser Lys Ile Arg Val Val
65 70 75 80

Arg Lys Ser Ile Ala Arg Val Leu Thr Val Ile Asn Gln Thr Gln Lys
85 90 95

Glu Asn Leu Arg Lys Phe Tyr Lys Gly Lys Lys Tyr Lys Pro Leu Asp
100 105 110

Leu Arg Pro Lys Lys Thr Arg Ala Met Arg Arg Arg Leu Asn Lys His
115 120 125

Glu Glu Asn Leu Lys Thr Lys Lys Gln Gln Arg Lys Glu Arg Leu Tyr
130 135 140

Pro Leu Arg Lys Tyr Ala Val Lys Ala
145 150

<210> 1689
<211> 130
<212> PRT
<213> Homo sapiens

<400> 1689
Gly Gly Gly Asp Ala Glu Met Gly Ala Ala Ala Ala Glu Ala Asp Arg
1 5 10 15

Thr Leu Phe Val Gly Asn Leu Glu Thr Lys Val Thr Glu Glu Leu Leu
20 25 30

Phe Glu Leu Phe His Gln Ala Gly Pro Val Ile Lys Val Lys Ile Pro
35 40 45

Lys Asp Lys Asp Gly Lys Pro Lys Gln Phe Ala Phe Val Asn Phe Lys
50 55 60

His Glu Val Ser Val Pro Tyr Ala Met Asn Leu Leu Asn Gly Ile Lys
65 70 75 80

Leu Tyr Gly Arg Pro Ile Lys Ile Gln Phe Arg Ser Gly Ser Ser His
85 90 95

Ala Pro Gln Asp Val Ser Leu Ser Tyr Pro Gln His His Val Gly Asn
100 105 110

Ser Ser Pro Thr Ser Thr Ser Pro Ser Ala Gly Thr Lys Gly Leu Trp
115 120 125

Ile Thr
130

<210> 1690
<211> 172
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (110)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1690
Arg Pro Ser Leu Glu Val Leu Phe Thr Val Ile Leu Thr Lys Ile Thr
1 5 10 15

Tyr Cys Pro Pro Glu Tyr Gln Val Leu Gly Asp Thr Ser Ser Ser Cys
20 25 30

Cys Leu Gln Ser Ser Tyr Gln Glu Ala Arg Cys Thr Gly Phe Leu Trp
35 40 45

Phe Leu Gln Glu Pro Pro Thr Leu Ser Val Phe Trp Pro Arg Ser Gly
50 55 60

Val Asn Pro Leu Val Ser Ala Phe Glu Leu Asp Thr Cys Ala Phe Ser
65 70 75 80

Ser Val Asn Thr Ala Leu Phe Gly Gly Val Ser Ser Ser Pro Gln Pro
85 90 95

Glu Leu Leu Asn Ser Lys Pro Lys Leu Val Ser Ala Glu Xaa Arg Phe
100 105 110

Gln Asp Ser Pro Val Ser Ile Cys Gly Asp Leu Gln Ile Arg Gln Ser
115 120 125

Ser Phe Pro Ala Ser Gly Val Leu Ala Pro Glu Pro Ser Leu Arg Leu
130 135 140

Val Leu Leu Asp Val Leu Ile Ser Asp His Tyr Pro Pro Tyr Ala Ser
145 150 155 160

His Arg Pro Arg Glu Asn Arg His Gln Asn Leu Gly
165 170

<210> 1691
<211> 272
<212> PRT
<213> Homo sapiens

<400> 1691
Asn Ser Arg Val His Pro Arg Arg Pro Val Thr Ala Glu Lys Met Ala
1 5 10 15

Val Leu Ala Pro Leu Ile Ala Leu Val Tyr Ser Val Pro Arg Leu Ser
20 25 30

Arg Trp Leu Ala Gln Pro Tyr Tyr Leu Leu Ser Ala Leu Leu Ser Ala
35 40 45

Ala Phe Leu Leu Val Arg Lys Leu Pro Pro Leu Cys His Gly Leu Pro
50 55 60

Thr Gln Arg Glu Asp Gly Asn Pro Cys Asp Phe Asp Trp Arg Glu Val
65 70 75 80

Glu Ile Leu Met Phe Leu Ser Ala Ile Val Met Met Lys Asn Arg Arg
85 90 95

Ser Met Phe Leu Met Thr Cys Lys Pro Pro Leu Tyr Met Gly Pro Glu
100 105 110

Tyr Ile Lys Tyr Phe Asn Asp Lys Thr Ile Asp Glu Glu Leu Glu Arg
115 120 125

Asp Lys Arg Val Thr Trp Ile Val Glu Phe Phe Ala Asn Trp Ser Asn
130 135 140

Asp Cys Gln Ser Phe Ala Pro Ile Tyr Ala Asp Leu Ser Leu Lys Tyr
145 150 155 160

Asn Cys Thr Gly Leu Asn Phe Gly Lys Val Asp Val Gly Arg Tyr Thr
165 170 175

Asp Val Ser Thr Arg Tyr Lys Val Ser Thr Ser Pro Leu Thr Lys Gln
180 185 190

Leu Pro Thr Leu Ile Leu Phe Gln Gly Gly Lys Glu Ala Met Arg Arg
195 200 205

Pro Gln Ile Asp Lys Lys Gly Arg Ala Val Ser Trp Thr Phe Ser Glu
210 215 220

Glu Asn Val Ile Arg Glu Phe Asn Leu Asn Glu Leu Tyr Gln Arg Ala
225 230 235 240

Lys Lys Leu Ser Lys Ala Gly Asp Asn Ile Pro Glu Glu Gln Pro Val
245 250 255

Ala Ser Thr Pro Thr Thr Val Ser Asp Gly Glu Asn Lys Lys Asp Lys
260 265 270

<210> 1692
<211> 366
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (8)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1692
Gly Lys Arg Thr Gly Arg Ala Xaa Ala Ser Ser Gly Arg Arg Gly Glu
1 5 10 15

Gly Gly Trp Trp Arg Leu Pro Arg Ser Pro Ser Leu Pro Ala Val Pro
20 25 30

Thr Pro Gly Thr Met Phe Pro Ala Gly Pro Pro Ser His Ser Leu Leu
35 40 45

Arg Leu Pro Leu Leu Gln Leu Leu Leu Leu Val Val Gln Ala Val Gly
50 55 60

Arg Gly Leu Gly Arg Ala Ser Pro Ala Gly Gly Pro Leu Glu Asp Val
65 70 75 80

Val Ile Glu Arg Tyr His Ile Pro Arg Ala Cys Pro Arg Glu Val Gln
85 90 95

Met Gly Asp Phe Val Arg Tyr His Tyr Asn Gly Thr Phe Glu Asp Gly
100 105 110

Lys Lys Phe Asp Ser Ser Tyr Asp Arg Asn Thr Leu Val Ala Ile Val
115 120 125

Val Gly Val Gly Arg Leu Ile Thr Gly Met Asp Arg Gly Leu Met Gly
130 135 140

Met Cys Val Asn Glu Arg Arg Arg Leu Ile Val Pro Pro His Leu Gly
145 150 155 160

Tyr Gly Ser Ile Gly Leu Ala Gly Leu Ile Pro Pro Asp Ala Thr Leu
165 170 175

Tyr Phe Asp Val Val Leu Leu Asp Val Trp Asn Lys Glu Asp Thr Val
180 185 190

Gln Val Ser Thr Leu Leu Arg Pro Pro His Cys Pro Arg Met Val Gln
195 200 205

Asp Gly Asp Phe Val Arg Tyr His Tyr Asn Gly Thr Leu Leu Asp Gly
210 215 220

Thr Ser Phe Asp Thr Ser Tyr Ser Lys Gly Gly Thr Tyr Asp Thr Tyr
225 230 235 240

Val Gly Ser Gly Trp Leu Ile Lys Gly Met Asp Gln Gly Leu Leu Gly
245 250 255

Met Cys Pro Gly Glu Arg Arg Lys Ile Ile Ile Pro Pro Phe Leu Ala
260 265 270

Tyr Gly Glu Lys Gly Tyr Gly Glu Gly Gly Gln Gly His Lys Gly Lys
275 280 285

Phe Arg Arg Arg Gly Lys Asn Gln Ala Ser Thr Tyr Ser Cys Ser Gly
290 295 300

Cys Ile Leu His Glu Gly Ile Gln Pro Arg Thr Gln Gly Gly Met Lys
305 310 315 320

Ser Thr Leu Gly Ala Thr Lys Lys Gly Cys Phe Gly Arg Ala Trp Trp
325 330 335

Leu Thr Leu Val Ile Pro Ala Leu Trp Glu Ala Lys Ala Gly Gly Ser
340 345 350

Arg Gly Gln Glu Ile Glu Thr Thr Val Lys Pro Arg Leu Tyr
355 360 365

<210> 1693
<211> 361
<212> PRT
<213> Homo sapiens

<400> 1693
Leu Pro Gln Ser Arg Trp Asn Lys Ser Ser Thr Pro Asp Gly Val Pro
1 5 10 15

Thr Leu Cys Cys Arg Asn Glu Ala Arg Gln Gln Ile Ser Ile Ser Arg
20 25 30

Met Trp Gly Leu Lys Val Leu Leu Leu Pro Val Val Ser Phe Ala Leu
35 40 45

Tyr Pro Glu Glu Ile Leu Asp Thr His Trp Glu Leu Trp Lys Lys Thr
50 55 60

His Arg Lys Gln Tyr Asn Asn Lys Val Asp Glu Ile Ser Arg Arg Leu
65 70 75 80

Ile Trp Glu Lys Asn Leu Lys Tyr Ile Ser Ile His Asn Leu Glu Ala
85 90 95

Ser Leu Gly Val His Thr Tyr Glu Leu Ala Met Asn His Leu Gly Asp
100 105 110

Met Thr Ser Glu Glu Val Val Gln Lys Met Thr Gly Leu Lys Val Pro
115 120 125

Leu Ser His Ser Arg Ser Asn Asp Thr Leu Tyr Ile Pro Glu Trp Glu
130 135 140

Gly Arg Ala Pro Asp Ser Val Asp Tyr Arg Lys Lys Gly Tyr Val Thr
145 150 155 160

Pro Val Lys Asn Gln Gly Gln Cys Gly Ser Cys Trp Ala Phe Ser Ser
165 170 175

Val Gly Ala Leu Glu Gly Gln Leu Lys Lys Lys Thr Gly Lys Leu Leu
180 185 190

Asn Leu Ser Pro Gln Asn Leu Val Asp Cys Val Ser Glu Asn Asp Gly
195 200 205

Cys Gly Gly Gly Tyr Met Thr Asn Ala Phe Gln Tyr Val Gln Lys Asn
210 215 220

Arg Gly Ile Asp Ser Glu Asp Ala Tyr Pro Tyr Val Gly Gln Glu Glu
225 230 235 240

Ser Cys Met Tyr Asn Pro Thr Gly Lys Ala Ala Lys Cys Arg Gly Tyr
245 250 255

Arg Glu Ile Pro Glu Gly Asn Glu Lys Ala Leu Lys Arg Ala Val Ala
260 265 270

Arg Val Gly Pro Val Ser Val Ala Ile Asp Ala Ser Leu Thr Ser Phe
275 280 285

Gln Phe Tyr Ser Lys Gly Val Tyr Tyr Asp Glu Ser Cys Asn Ser Asp
290 295 300

Asn Leu Asn His Ala Val Leu Ala Val Gly Tyr Gly Ile Gln Lys Gly
305 310 315 320

Asn Lys His Trp Ile Ile Lys Asn Ser Trp Gly Glu Asn Trp Gly Asn
325 330 335

Lys Gly Tyr Ile Leu Met Ala Arg Asn Lys Asn Asn Ala Cys Gly Ile
340 345 350

Ala Asn Leu Ala Ser Phe Pro Lys Met
355 360

<210> 1694
<211> 282
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (20)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1694
Pro Arg Val Arg Arg Gly Pro Arg Val Ser Ser Met Ala Ser Ala Asp
1 5 10 15

Ser Arg Arg Xaa Ala Asp Gly Gly Gly Ala Gly Gly Thr Phe Gln Pro
20 25 30

Tyr Leu Asp Thr Leu Arg Gln Glu Leu Gln Gln Thr Asp Pro Thr Leu
35 40 45

Leu Ser Val Val Val Ala Val Leu Ala Val Leu Leu Thr Leu Val Phe
50 55 60

Trp Lys Leu Ile Arg Ser Arg Arg Ser Ser Gln Arg Ala Val Leu Leu
65 70 75 80

Val Gly Leu Cys Asp Ser Gly Lys Thr Leu Leu Phe Val Arg Leu Leu
85 90 95

Thr Gly Leu Tyr Arg Asp Thr Gln Thr Ser Ile Thr Asp Ser Cys Ala
100 105 110

Val Tyr Arg Val Asn Asn Asn Arg Gly Asn Ser Leu Thr Leu Ile Asp
115 120 125

Leu Pro Gly His Glu Ser Leu Arg Leu Gln Phe Leu Glu Arg Phe Lys
130 135 140

Ser Ser Ala Arg Ala Ile Val Phe Val Val Asp Ser Ala Ala Phe Gln
145 150 155 160

Arg Glu Val Lys Asp Val Ala Glu Phe Leu Tyr Gln Val Leu Ile Asp
165 170 175

Ser Met Gly Leu Lys Asn Thr Pro Ser Phe Leu Ile Ala Cys Asn Lys
180 185 190

Gln Asp Ile Ala Met Ala Lys Ser Ala Lys Leu Ile Gln Gln Gln Leu
195 200 205

Glu Lys Glu Leu Asn Thr Leu Arg Val Thr Arg Ser Ala Ala Pro Ser
210 215 220

Thr Leu Asp Ser Ser Ser Thr Ala Pro Ala Gln Leu Gly Lys Lys Gly
225 230 235 240

Lys Glu Phe Glu Phe Ser Gln Leu Pro Leu Lys Val Glu Phe Leu Glu
245 250 255

Cys Ser Ala Lys Gly Gly Arg Gly Asp Val Gly Ser Ala Asp Ile Gln
260 265 270

Asp Leu Glu Lys Trp Leu Ala Lys Ile Ala
275 280

<210> 1695
<211> 232
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (113)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1695
Gly Val Asp Thr Ser Pro Phe Ala Lys Ser Leu Gly His Ser Arg Gly
1   5   10   15

Glu Ala Asp Leu Phe Asp Ser Gly Asp Ile Phe Ser Thr Gly Thr Gly
            20   25   30

Ser Gln Ser Val Glu Arg Thr Lys Pro Lys Ala Lys Ile Ala Glu Asn
        35   40   45

Pro Ala Asn Pro Pro Val Gly Gly Lys Ala Lys Ser Pro Met Phe Pro
    50   55   60

Ala Leu Gly Glu Ala Ser Ser Asp Asp Asp Leu Phe Gln Ser Ala Lys
65   70   75   80

Pro Lys Pro Ala Lys Lys Thr Asn Pro Phe Pro Leu Leu Glu Asp Glu
                85   90   95

Asp Asp Leu Phe Thr Asp Gln Lys Val Lys Lys Asn Glu Thr Lys Ser
            100   105   110

Xaa Ser Gln Gln Asp Val Ile Leu Thr Thr Gln Asp Ile Phe Glu Asp
        115   120   125

Asp Ile Phe Ala Thr Glu Ala Ile Lys Pro Ser Gln Lys Thr Arg Glu
    130   135   140

Lys Glu Lys Thr Leu Glu Ser Asn Leu Phe Asp Asp Asn Ile Asp Ile
145   150   155   160

Phe Ala Asp Leu Thr Val Lys Pro Lys Glu Lys Ser Lys Lys Lys Val
                165   170   175

Glu Ala Lys Ser Ile Phe Asp Asp Asp Met Asp Asp Ile Phe Ser Ser
            180   185   190

Gly Ile Gln Ala Lys Thr Thr Lys Pro Lys Ser Arg Ser Ala Gln Ala

195 200 205

Ala Pro Glu Pro Arg Phe Glu His Lys Val Ser Asn Ile Phe Asp Asp
210 215 220

Pro Leu Asn Ala Phe Gly Gly Gln
225 230

<210> 1696
<211> 123
<212> PRT
<213> Homo sapiens

<400> 1696
Arg Gly Gly Ser Pro Glu Val Ser Gly Asn Gly Ala Ala Leu Phe Glu
1 5 10 15

Met Phe Ser Tyr Leu Ile Leu Cys Pro Ser Arg Gly Ser Ser Leu Ile
20 25 30

Cys Leu Ala Trp Pro Cys Val Pro Pro Val Pro Cys Ser Thr Ala Tyr
35 40 45

Leu Val Pro Gln Val Leu Leu Ala Thr Pro Ala Val Thr Leu Asn Ser
50 55 60

Phe Asn Ser Ala Leu Asn Ala Pro Ala Ser Glu Ala Cys Pro Ile Ser
65 70 75 80

Phe Phe Leu Ala Ser Val Phe Phe Phe Ser Phe Phe Phe Pro Cys Phe
85 90 95

Cys Arg Arg Leu Arg Gly Glu Ser Phe Leu Trp Leu Pro Leu Leu Arg
100 105 110

Leu Glu Leu Glu Glu Asn Leu Ile Phe Cys Ile
115 120

<210> 1697
<211> 272
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (256)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (258)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (262)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (263)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (267)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1697
```
Pro Ala Pro Ala Ala His Val Ala Gly Asn Pro Gly Gly Asp Ala Ala
  1               5                  10                  15

Pro Ala Ala Thr Gly Thr Ala Ala Ala Ala Ser Leu Ala Thr Ala Ala
             20                  25                  30

Gly Ser Glu Asp Ala Glu Lys Lys Val Leu Ala Thr Lys Val Leu Gly
         35                  40                  45

Thr Val Lys Trp Phe Asn Val Arg Asn Gly Tyr Gly Phe Ile Asn Arg
     50                  55                  60

Asn Asp Thr Lys Glu Asp Val Phe Val His Gln Thr Ala Ile Lys Lys
 65                  70                  75                  80

Asn Asn Pro Arg Lys Tyr Leu Arg Ser Val Gly Asp Gly Glu Thr Val
                 85                  90                  95

Glu Phe Asp Val Val Glu Gly Glu Lys Gly Ala Glu Ala Ala Asn Val
            100                 105                 110

Thr Gly Pro Asp Gly Val Pro Val Glu Gly Ser Arg Tyr Ala Ala Asp
        115                 120                 125

Arg Arg Arg Tyr Arg Arg Gly Tyr Tyr Gly Arg Arg Arg Gly Pro Pro
    130                 135                 140

Arg Asn Ala Gly Glu Ile Gly Glu Met Lys Asp Gly Val Pro Glu Gly
145                 150                 155                 160
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Ala Gln Leu Gln Gly Pro Val His Arg Asn Pro Thr Tyr Arg Pro Arg
165 170 175

Tyr Arg Ser Arg Gly Pro Pro Arg Pro Arg Pro Ala Pro Ala Val Gly
180 185 190

Glu Ala Glu Asp Lys Glu Asn Gln Gln Ala Thr Ser Gly Pro Asn Gln
195 200 205

Pro Ser Val Arg Arg Gly Tyr Arg Arg Pro Tyr Asn Tyr Arg Arg Arg
210 215 220

Pro Arg Pro Pro Asn Ala Pro Ser Gln Asp Gly Lys Glu Ala Lys Ala
225 230 235 240

Gly Glu Ala Pro Thr Glu Asn Pro Ala Pro Pro Thr Ser Arg Ala Xaa
245 250 255

Leu Xaa Asn Thr Arg Xaa Xaa Arg His Leu Xaa His Arg Gln Val Thr
260 265 270

<210> 1698
<211> 88
<212> PRT
<213> Homo sapiens

<400> 1698
Arg Glu Thr Ala Cys Cys Gly Arg Asp Ala Arg Gly Ala Ala Pro Ala
1 5 10 15

Ala Met Ala Val Thr Ala Leu Ala Ala Arg Thr Trp Leu Gly Val Trp
20 25 30

Gly Val Arg Thr Met Gln Ala Arg Gly Phe Gly Ser Asp Gln Ser Glu
35 40 45

Asn Val Asp Arg Gly Ala Gly Ser Ile Arg Glu Ala Gly Gly Ala Phe
50 55 60

Gly Lys Arg Glu Gln Ala Glu Glu Glu Arg Tyr Phe Arg His Tyr Arg
65 70 75 80

Leu Cys Phe Glu Ile Ser Leu Gly
85

<210> 1699
<211> 223
<212> PRT
<213> Homo sapiens

<400> 1699
Cys Cys Ser Glu Gln Gln Arg Ile Ser Lys Asp Leu Ala Asn Ile Cys
1 5 10 15

Lys Thr Ala Ala Thr Ala Gly Ile Ile Gly Trp Val Tyr Gly Gly Ile
20 25 30

Pro Ala Phe Ile His Ala Lys Gln Gln Tyr Ile Glu Gln Ser Gln Ala
35 40 45

Glu Ile Tyr His Asn Arg Phe Asp Ala Val Gln Ser Ala His Arg Ala
50 55 60

Ala Thr Arg Gly Phe Ile Arg Tyr Gly Trp Arg Trp Gly Trp Arg Thr
65 70 75 80

Ala Val Phe Val Thr Ile Phe Asn Thr Val Asn Thr Ser Leu Asn Val
85 90 95

Tyr Arg Asn Lys Asp Ala Leu Ser His Phe Val Ile Ala Gly Ala Val
100 105 110

Thr Gly Ser Leu Phe Arg Ile Asn Val Gly Leu Arg Gly Leu Val Ala
115 120 125

Gly Gly Ile Ile Gly Ala Leu Leu Gly Thr Pro Val Gly Gly Leu Leu
130 135 140

Met Ala Phe Gln Lys Tyr Ser Gly Glu Thr Val Gln Glu Arg Lys Gln
145 150 155 160

Lys Asp Arg Lys Ala Leu His Glu Leu Lys Leu Glu Glu Trp Lys Gly
165 170 175

Arg Leu Gln Val Thr Glu His Leu Pro Glu Lys Ile Glu Ser Ser Leu
180 185 190

Gln Glu Asp Glu Pro Glu Asn Asp Ala Lys Lys Ile Glu Ala Leu Leu
195 200 205

Asn Leu Pro Arg Asn Pro Ser Val Ile Asp Lys Gln Asp Lys Asp
210 215 220

<210> 1700
<211> 543
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (264)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (269)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (279)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1700
Ala Arg Ala Arg Leu Thr Cys Pro Arg Arg Arg Gly Pro Trp Glu Ala
1 5 10 15

Gly Ser Arg Ala Thr Val Ser Leu Thr Arg Leu Ala Leu Gly Val Pro
20 25 30

Gly Pro Arg Glu His Pro Gly Gln Pro Glu Asp Ser Pro Glu Ala Glu
35 40 45

Ala Ser Thr Leu Asp Val Phe Thr Glu Arg Leu Pro Pro Ser Gly Arg
50 55 60

Ile Thr Lys Thr Glu Ser Leu Val Ile Pro Ser Thr Arg Ser Glu Gly
65 70 75 80

Lys Gln Ala Gly Arg Arg Gly Arg Ser Thr Ser Leu Lys Glu Arg Gln
85 90 95

Ala Ala Arg Pro Gln Asn Glu Arg Ala Asn Ser Leu Asp Asn Glu Arg
100 105 110

Cys Pro Asp Ala Arg Ser Gln Leu Gln Ile Pro Arg Lys Thr Val Tyr
115 120 125

Asp Gln Leu Asn His Ile Leu Ile Ser Asp Asp Gln Leu Pro Glu Asn
130 135 140

Ile Ile Leu Val Asn Thr Ser Asp Trp Gln Gly Gln Phe Leu Ser Asp
145 150 155 160

Val Leu Gln Arg His Thr Leu Pro Val Val Cys Thr Cys Ser Pro Ala
165 170 175

Asp Val Gln Ala Ala Phe Ser Thr Ile Val Ser Arg Ile Gln Arg Tyr
180 185 190

Cys Asn Cys Asn Ser Gln Pro Pro Thr Pro Val Lys Ile Ala Val Ala
195 200 205

Gly Ala Gln His Tyr Leu Ser Ala Ile Leu Arg Leu Phe Val Glu Gln
210 215 220

Leu Ser His Lys Thr Pro Asp Trp Leu Gly Tyr Met Arg Phe Leu Val
225 230 235 240

Ile Pro Leu Gly Ser His Pro Val Ala Arg Tyr Leu Gly Ser Val Asp
245 250 255

Tyr Arg Tyr Asn Asn Phe Phe Xaa Asp Leu Ala Trp Xaa Asp Leu Phe
260 265 270

Asn Lys Leu Glu Ala Gln Xaa Ala Val Gln Asp Thr Pro Asp Ile Val
275 280 285

Ser Arg Ile Thr Gln Tyr Ile Ala Gly Ala Asn Cys Ala His Gln Leu
290 295 300

Pro Ile Ala Glu Ala Met Leu Thr Tyr Lys Gln Lys Ser Pro Asp Glu
305 310 315 320

Glu Ser Ser Gln Lys Phe Ile Pro Phe Val Gly Val Val Lys Val Gly
325 330 335

Ile Val Glu Pro Ser Ser Ala Thr Ser Gly Asp Ser Asp Asp Ala Ala
340 345 350

Pro Ser Gly Ser Gly Thr Leu Ser Ser Thr Pro Pro Ser Ala Ser Pro
355 360 365

Ala Ala Lys Glu Ala Ser Pro Thr Pro Pro Ser Ser Pro Ser Val Ser
370 375 380

Gly Gly Leu Ser Ser Pro Ser Gln Gly Val Gly Ala Glu Leu Met Gly
385 390 395 400

Leu Gln Val Asp Tyr Trp Thr Ala Ala Gln Pro Ala Asp Arg Lys Arg
405 410 415

Asp Ala Glu Lys Lys Asp Leu Pro Val Thr Lys Asn Thr Leu Lys Cys
420 425 430

Thr Phe Arg Ser Leu Gln Val Ser Arg Leu Pro Ser Ser Gly Glu Ala
435 440 445

Ala Ala Thr Pro Thr Met Ser Met Thr Val Val Thr Lys Glu Lys Asn
450 455 460

Lys Lys Val Met Phe Leu Pro Lys Lys Ala Lys Asp Lys Asp Val Glu
465 470 475 480

Ser Lys Ser Gln Cys Ile Glu Gly Ile Ser Arg Leu Ile Cys Thr Ala
485 490 495

Arg Gln Gln Gln Asn Met Leu Arg Val Leu Ile Asp Gly Val Glu Cys
500 505 510

Ser Asp Val Lys Phe Phe Gln Leu Ala Ala Gln Trp Ser Ser His Val
515 520 525

Lys His Phe Pro Ile Cys Ile Phe Gly His Ser Lys Ala Thr Phe
530 535 540

<210> 1701
<211> 71
<212> PRT
<213> Homo sapiens

<400> 1701
Ile Pro Ser Tyr Thr Ile Lys Cys Ser Ile Gly Arg Gln Ser Val Ser
1 5 10 15

Phe Phe Phe Tyr Val Tyr Cys Leu Cys Gly Val Lys Tyr Lys Ala Leu
20 25 30

Gly Cys Ile Thr Tyr Ser Lys Ala Val Thr Leu Ser Leu Ile Cys Cys
35 40 45

Asp Pro Leu Lys Met Cys Trp Gly Leu Phe Cys Cys His Cys Leu Cys
50 55 60

Cys Trp Asn Leu Ala Leu Ser
65 70

<210> 1702
<211> 131
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (79)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1702
Glu His Val Phe Gly Phe Leu Phe Cys Val Ser Leu Leu Arg Ile Met
1 5 10 15

Ala Ser Ser Ser Asp Gly Ile Ser Leu Ser Tyr Arg Pro Val Val Thr
20 25 30

Gly Gln Asp Arg Met Met Asp Thr Glu Val Leu Ser Leu Leu Ser Ser
35 40 45

Val Ala Leu Pro Ser Leu Leu Leu Ala Ser Glu Ser Phe Asp Ser Ile
50 55 60

Tyr Pro Gly Ile Phe Cys Val Leu Met Phe Ser Ser Gly Leu Xaa Ser
65 70 75 80

Ala Val Leu Ile Gly Arg Ala Leu Ser Phe Gln Ala Ile Leu Lys Gly
85 90 95

Gly Gln Ser Lys Gly Gln Ser Leu Asn Pro Phe Cys Gly Leu Asn Asn
100 105 110

Leu Arg Ile Lys Ser Ser Val Leu Leu Ile Pro Val Leu Leu Cys Gln
115 120 125

Thr Leu Ser
130

<210> 1703
<211> 330
<212> PRT
<213> Homo sapiens

<400> 1703
His Gly Asn Pro Asp Arg Arg Pro Arg Gly Glu Glu Glu Gly Asp Pro
1 5 10 15

Val Gly Pro Ala Thr Leu Ser Ala Arg Leu Gly Ala Ser Ala Gly Ala
20 25 30

Met Thr Ser Leu Thr Gln Arg Ser Ser Gly Leu Val Gln Arg Arg Thr
35 40 45

Glu Ala Ser Arg Asn Ala Ala Asp Lys Glu Arg Ala Ala Gly Gly Gly
50 55 60

Ala Gly Ser Ser Glu Asp Asp Ala Gln Ser Arg Arg Asp Glu Gln Asp
65 70 75 80

Asp Asp Asp Lys Gly Asp Ser Lys Glu Thr Arg Leu Thr Leu Met Glu
85 90 95

Glu Val Leu Leu Leu Gly Leu Lys Asp Arg Glu Gly Tyr Thr Ser Phe
100 105 110

Trp Asn Asp Cys Ile Ser Ser Gly Leu Arg Gly Cys Met Leu Ile Glu
115 120 125

Leu Ala Leu Arg Gly Arg Leu Gln Leu Glu Ala Cys Gly Met Arg Arg
130 135 140

Lys Ser Leu Leu Thr Arg Lys Val Ile Cys Lys Ser Asp Ala Pro Thr
145 150 155 160

Gly Asp Val Leu Leu Asp Glu Ala Leu Lys His Val Lys Glu Thr Gln
165 170 175

Pro Pro Glu Thr Val Gln Asn Trp Ile Glu Leu Leu Ser Gly Glu Thr
180 185 190

Trp Asn Pro Leu Lys Leu His Tyr Gln Leu Arg Asn Val Arg Glu Arg
195 200 205

Leu Ala Lys Asn Leu Val Glu Lys Gly Val Leu Thr Thr Glu Lys Gln
210 215 220

Asn Phe Leu Leu Phe Asp Met Thr Thr His Pro Leu Thr Asn Asn Asn
225 230 235 240

Ile Lys Gln Arg Leu Ile Lys Lys Val Gln Glu Ala Val Leu Asp Lys
245 250 255

Trp Val Asn Asp Pro His Arg Met Asp Arg Arg Leu Leu Ala Leu Ile
260 265 270

Tyr Leu Ala His Ala Ser Asp Val Leu Glu Asn Ala Phe Ala Pro Leu
275 280 285

Leu Asp Glu Gln Tyr Asp Leu Ala Thr Lys Arg Val Arg Gln Leu Leu
290 295 300

Asp Leu Asp Pro Glu Val Glu Cys Leu Lys Ala Asn Thr Asn Glu Val
305 310 315 320

Leu Trp Ala Val Val Ala Ala Phe Thr Lys
325 330

<210> 1704
<211> 86
<212> PRT
<213> Homo sapiens

<400> 1704
Val Phe Ile Ser Ile Val Ser Leu Arg His Gly Lys Gly Arg Met Leu
1 5 10 15

Lys Gln Val Met Phe Val Phe Ser Gly Met Gly Pro Arg Ser His Cys
20 25 30

Trp Gly Leu Pro Leu His Val Ala Pro Leu Cys Arg Pro Pro Gly Arg
35 40 45

Leu Phe Pro Pro Ser Pro Thr Glu Ala Pro Arg Gly Leu Asn Arg Asn
50 55 60

Leu Ala Asn Gln Arg His Phe Phe Cys Pro Ser Ile Phe His Thr Cys
65 70 75 80

Pro Thr Val Leu Phe Phe
85

<210> 1705
<211> 17
<212> PRT
<213> Homo sapiens

<400> 1705
Phe Gly Gly Glu Glu Met Ala Asp Ser Val Lys Thr Phe Leu Gln Asp
1 5 10 15

Leu

<210> 1706
<211> 471
<212> PRT
<213> Homo sapiens

<220>

<221> SITE
<222> (37)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (41)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (48)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (191)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (373)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (446)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1706
Ser Thr Pro Ser Gly Tyr Leu Glu Leu Pro Asp Leu Gly Gln Pro Tyr
1   5   10   15

Ser Ser Ala Val Tyr Ser Leu Glu Glu Gln Tyr Leu Gly Leu Ala Leu
            20   25   30

Asp Val Asp Arg Xaa Lys Lys Asp Xaa Glu Glu Glu Glu Asp Gln Xaa
        35   40   45

Pro Pro Cys Pro Arg Leu Ser Arg Glu Leu Leu Glu Val Val Glu Pro
    50   55   60

Glu Val Leu Gln Asp Ser Leu Asp Arg Cys Tyr Ser Thr Pro Ser Ser
65   70   75   80

Cys Leu Glu Gln Pro Asp Ser Cys Gln Pro Tyr Gly Ser Ser Phe Tyr
                85   90   95

Ala Leu Glu Glu Lys His Val Gly Phe Ser Leu Asp Val Gly Glu Ile
            100   105   110

Glu Lys Lys Gly Lys Gly Lys Lys Arg Arg Gly Arg Arg Ser Lys Lys
115 120 125

Glu Arg Arg Arg Gly Arg Lys Glu Gly Glu Glu Asp Gln Asn Pro Pro
130 135 140

Cys Pro Arg Leu Ser Arg Glu Leu Leu Asp Glu Lys Gly Pro Glu Val
145 150 155 160

Leu Gln Asp Ser Leu Asp Arg Cys Tyr Ser Thr Pro Ser Gly Cys Leu
165 170 175

Glu Leu Thr Asp Ser Cys Gln Pro Tyr Arg Ser Ala Phe Tyr Xaa Leu
180 185 190

Glu Gln Gln Arg Val Gly Leu Ala Val Asp Met Asp Glu Ile Glu Lys
195 200 205

Tyr Gln Glu Val Glu Glu Asp Gln Asp Pro Ser Cys Pro Arg Leu Ser
210 215 220

Arg Glu Leu Leu Asp Glu Lys Glu Pro Glu Val Leu Gln Asp Ser Leu
225 230 235 240

Asp Arg Cys Tyr Ser Thr Pro Ser Gly Tyr Leu Glu Leu Pro Asp Leu
245 250 255

Gly Gln Pro Tyr Ser Ser Ala Val Tyr Ser Leu Glu Glu Gln Tyr Leu
260 265 270

Gly Leu Ala Leu Asp Val Asp Arg Ile Lys Lys Asp Gln Glu Glu Glu
275 280 285

Glu Asp Gln Gly Pro Pro Cys Pro Arg Leu Ser Arg Glu Leu Leu Glu
290 295 300

Val Val Glu Pro Glu Val Leu Gln Asp Ser Leu Asp Arg Cys Tyr Ser
305 310 315 320

Thr Pro Ser Ser Cys Leu Glu Gln Pro Asp Ser Cys Gln Pro Tyr Gly
325 330 335

Ser Ser Phe Tyr Ala Leu Glu Glu Lys His Val Gly Phe Ser Leu Asp
340 345 350

Val Gly Glu Ile Glu Lys Lys Gly Lys Gly Lys Lys Arg Arg Gly Arg
355 360 365

Arg Ser Lys Lys Xaa Arg Arg Arg Gly Arg Lys Glu Gly Glu Glu Asp
370 375 380

Gln Asn Pro Pro Cys Pro Arg Leu Asn Gly Val Leu Met Glu Val Glu
385 390 395 400

Glu Pro Glu Val Leu Gln Asp Ser Leu Asp Arg Cys Tyr Ser Thr Pro
405 410 415

Ser Met Tyr Phe Glu Leu Pro Asp Ser Phe Gln His Tyr Arg Ser Val
420 425 430

Phe Tyr Ser Phe Glu Glu Gln His Ile Ser Phe Ala Leu Xaa Val Asp
435 440 445

Asn Arg Phe Phe Thr Leu Thr Val Thr Ser Leu His Leu Val Phe Gln
450 455 460

Met Gly Val Ile Phe Pro Gln
465 470

<210> 1707
<211> 250
<212> PRT
<213> Homo sapiens

<400> 1707
Arg Glu Arg Asn Leu Gly Ala Pro Gly Ser Gly Leu Lys Ala Ala Arg
1 5 10 15

Gln Ser Arg Ala Val Leu Ala Pro Ala Arg Gly Ala Ala Ala Pro Gly
20 25 30

Val Ala Met Thr Ser Glu Leu Asp Ile Phe Val Gly Asn Thr Thr Leu
35 40 45

Ile Asp Glu Asp Val Tyr Arg Leu Trp Leu Asp Gly Tyr Ser Val Thr
50 55 60

Asp Ala Val Ala Leu Arg Val Arg Ser Gly Ile Leu Glu Gln Thr Gly
65 70 75 80

Ala Thr Ala Ala Val Leu Gln Ser Asp Thr Met Asp His Tyr Arg Thr
85 90 95

Phe His Met Leu Glu Arg Leu Leu His Ala Pro Pro Lys Leu Leu His
100 105 110

Gln Leu Ile Phe Gln Ile Pro Pro Ser Arg Gln Ala Leu Leu Ile Glu
115 120 125

Arg Tyr Tyr Ala Phe Asp Glu Ala Phe Val Arg Glu Val Leu Gly Lys

130 135 140

Lys Leu Ser Lys Gly Thr Lys Lys Asp Leu Asp Asp Ile Ser Thr Lys
145 150 155 160

Thr Gly Ile Thr Leu Lys Ser Cys Arg Arg Gln Phe Asp Asn Phe Lys
165 170 175

Arg Val Phe Lys Val Val Glu Glu Met Arg Gly Ser Leu Val Asp Asn
180 185 190

Ile Gln Gln His Phe Leu Leu Ser Asp Arg Leu Ala Arg Asp Tyr Ala
195 200 205

Ala Ile Val Phe Phe Ala Asn Asn Arg Phe Glu Thr Gly Lys Lys Lys
210 215 220

Leu Gln Tyr Leu Ser Phe Gly Asp Phe Ala Phe Cys Ala Glu Leu Met
225 230 235 240

Ile Gln Asn Trp Thr Leu Trp Ser Arg Arg
245 250

<210> 1708
<211> 337
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (112)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (127)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (283)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1708
Ile Tyr His Pro Ala Val Val Glu Ser Thr Ile Cys Ser Gly Ile Tyr
1 5 10 15

Thr Gln Cys Gln Phe Asp Ile Met Leu Gly Gly Thr Asp Cys Arg Thr
20 25 30

Phe Leu Thr Ser His Ile Asn Leu Lys Lys Thr Leu Cys Asp Val Ile
35 40 45

Leu Met Val Gln Glu Arg Lys Ile Pro Ala His Arg Val Val Leu Ala
50 55 60

Ala Ala Ser His Phe Phe Asn Leu Met Phe Thr Thr Asn Met Leu Glu
65 70 75 80

Ser Lys Ser Phe Glu Val Glu Leu Lys Asp Ala Glu Pro Asp Ile Ile
85 90 95

Glu Gln Leu Val Glu Phe Ala Tyr Thr Ala Arg Ile Ser Val Asn Xaa
100 105 110

Asn Asn Val Gln Ser Leu Leu Asp Ala Ala Asn Gln Tyr Gln Xaa Glu
115 120 125

Pro Val Lys Lys Met Cys Val Asp Phe Leu Lys Glu Gln Val Asp Ala
130 135 140

Ser Asn Cys Leu Gly Ile Ser Val Leu Ala Glu Cys Leu Asp Cys Pro
145 150 155 160

Glu Leu Lys Ala Thr Ala Asp Asp Phe Ile His Gln His Phe Thr Glu
165 170 175

Val Tyr Lys Thr Asp Glu Phe Leu Gln Leu Asp Val Lys Arg Val Thr
180 185 190

His Leu Leu Asn Gln Asp Thr Leu Thr Val Arg Ala Glu Asp Gln Val
195 200 205

Tyr Asp Ala Ala Val Arg Trp Leu Lys Tyr Asp Glu Pro Asn Arg Gln
210 215 220

Pro Phe Met Val Asp Ile Leu Ala Lys Val Arg Phe Pro Leu Ile Ser
225 230 235 240

Lys Asn Phe Leu Ser Lys Thr Val Gln Ala Glu Pro Leu Ile Gln Asp
245 250 255

Asn Pro Glu Cys Leu Lys Met Val Ile Ser Gly Met Arg Tyr His Leu
260 265 270

Leu Ser Pro Glu Asp Arg Glu Glu Leu Val Xaa Gly Thr Arg Pro Arg
275 280 285

Arg Lys Lys His Asp Tyr Arg Ile Ala Leu Phe Gly Gly Ser Gln Pro
290 295 300

Gln Ser Cys Arg Tyr Phe Asn Pro Lys Asp Tyr Ser Trp Thr Asp Ile
305   310   315   320

Arg Cys Pro Phe Glu Lys Arg Glu Met Gln His Ala Cys Phe Gly Thr
                325   330   335

Met

<210> 1709
<211> 101
<212> PRT
<213> Homo sapiens

<400> 1709
Val Ala Ser Gly His Pro Arg Pro Asp Ile Thr Trp Met Lys Asp Asp
1   5   10   15

Gln Ala Leu Thr Arg Pro Glu Ala Ala Glu Pro Arg Lys Lys Lys Trp
            20   25   30

Thr Leu Ser Leu Lys Asn Leu Arg Pro Glu Asp Ser Gly Lys Tyr Thr
        35   40   45

Cys Arg Val Ser Asn Arg Ala Gly Ala Ile Asn Ala Thr Tyr Lys Val
    50   55   60

Asp Val Ile Gln Arg Thr Arg Ser Lys Pro Val Leu Thr Gly Thr His
65   70   75   80

Pro Val Asn Thr Thr Val Asp Phe Gly Gly Thr Thr Ser Phe Gln Cys
                85   90   95

Lys Val Arg Thr Thr
            100

<210> 1710
<211> 124
<212> PRT
<213> Homo sapiens

<400> 1710
Lys Leu Glu Leu His Arg Gly Gly Gly Arg Ser Arg Thr Ser Gly Ser
1   5   10   15

Pro Gly Leu Gln Glu Phe Gly Thr Arg Asn Leu Arg Lys Met Val Ala

20 25 30

Met Ala Ala Gly Pro Ser Gly Cys Leu Val Pro Ala Phe Gly Leu Arg
35 40 45

Leu Leu Leu Ala Thr Val Leu Gln Ala Val Ser Ala Phe Gly Ala Glu
50 55 60

Phe Ser Ser Glu Ala Cys Arg Glu Leu Gly Phe Ser Ser Asn Leu Leu
65 70 75 80

Cys Ser Ser Cys Asp Leu Leu Gly Gln Phe Asn Leu Leu Gln Leu Asp
85 90 95

Pro Asp Cys Arg Gly Cys Cys Gln Glu Glu Ala Gln Phe Glu Thr Lys
100 105 110

Lys Leu Tyr Ala Gly Ala Ile Leu Glu Val Cys Gly
115 120

<210> 1711
<211> 98
<212> PRT
<213> Homo sapiens

<400> 1711
Gly His Ala Ser Phe Arg Ala Phe Ser Phe Pro Pro Ser Ile Ser Asn
1 5 10 15

Leu Gly Met Phe Gly Ile Asp Glu Phe Thr Ala Val Ile Asn Pro Pro
20 25 30

Gln Ala Cys Ile Leu Ala Val Gly Arg Phe Arg Pro Val Leu Lys Leu
35 40 45

Thr Glu Asp Glu Glu Gly Asn Ala Lys Leu Gln Gln Arg Gln Leu Ile
50 55 60

Thr Val Thr Met Ser Ser Asp Ser Arg Val Val Asp Asp Glu Leu Ala
65 70 75 80

Thr Arg Phe Leu Lys Ser Phe Lys Ala Asn Leu Glu Asn Pro Ile Arg
85 90 95

Leu Ala

<210> 1712
<211> 100
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (19)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1712
Gly Ile Lys Gly Pro Trp Thr Glu Ser Cys Leu Gly Gly Pro Ser Gly
1 5 10 15

Met Gly Xaa Gly His Thr Ser Leu Ala Ile Ser Gln Gln Asp Gln Ser
20 25 30

Lys Leu Tyr His Leu Pro Pro Pro Thr Val Gly Pro His Ser Ile Ala
35 40 45

Ser Pro Pro Glu Asp Arg Thr Val Lys Asp Ser Thr Pro Ser Ser Leu
50 55 60

Asp Ser Asp Pro Leu Met Ala Met Leu Leu Lys Leu Gln Glu Ala Ala
65 70 75 80

Asn Tyr Ile Glu Ser Pro Asp Arg Glu Thr Ile Leu Asp Pro Asn Leu
85 90 95

Gln Ala Thr Leu
100

<210> 1713
<211> 66
<212> PRT
<213> Homo sapiens

<400> 1713
Pro Ile Phe Ile Glu Tyr Phe Leu His Val Gln Leu His Pro Leu Cys
1 5 10 15

Lys Asp Tyr Met Asn Ile Ala His Ser Leu Leu Val Ser Gln Thr His
20 25 30

Leu Tyr Ile Phe Leu Ser Glu Ala His Cys Thr Cys Ile Glu Ala Arg
35 40 45

Ile Glu Ser Arg Lys Ile Lys Pro His Ser Pro Thr Ala Lys Cys Ala
50 55 60

Phe Pro
65

<210> 1714
<211> 107
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (3)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1714
Gly Thr Xaa Thr Phe Pro Gly Pro Pro Asn Asn Ser Ser Ile His Gly
1 5 10 15

Gly Ser Lys Arg Ser Glu Asn Ser Tyr Cys Arg Asp Leu Arg Gly Gln
20 25 30

Leu Arg Ala Ile Cys Cys Ser Ser Tyr Ser His Asp Arg His Thr Thr
35 40 45

Glu Glu Arg Gly Ser Arg Gly Arg Arg Val Trp Arg Ile Arg Arg Leu
50 55 60

His Thr Ser Gly Leu Pro Cys Cys Cys His Ser Gly Pro His Pro Arg
65 70 75 80

Arg Leu Pro Asp Ile Leu Arg Leu Val Thr Ser Thr Lys Thr Asp His
85 90 95

Thr Asn Thr Thr Glu Gly Thr Leu Asp Tyr Leu
100 105

<210> 1715
<211> 491
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (42)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE
<222> (43)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (44)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1715
Ala Ala Arg Val Gly Arg His Gly Arg Arg Arg Arg Ser Ala Ala Met
1 5 10 15

Ala Gly Arg Gly Gly Ser Ala Leu Leu Ala Leu Cys Gly Ala Leu Ala
20 25 30

Ala Cys Gly Trp Leu Leu Gly Ala Glu Xaa Xaa Xaa Pro Gly Ala Pro
35 40 45

Ala Ala Gly Met Arg Arg Arg Arg Arg Leu Gln Gln Glu Asp Gly Ile
50 55 60

Ser Phe Glu Tyr His Arg Tyr Pro Glu Leu Arg Glu Ala Leu Val Ser
65 70 75 80

Val Trp Leu Gln Cys Thr Ala Ile Ser Arg Ile Tyr Thr Val Gly Arg
85 90 95

Ser Phe Glu Gly Arg Glu Leu Leu Val Ile Glu Leu Ser Asp Asn Pro
100 105 110

Gly Val His Glu Pro Gly Glu Pro Glu Phe Lys Tyr Ile Gly Asn Met
115 120 125

His Gly Asn Glu Ala Val Gly Arg Glu Leu Leu Ile Phe Leu Ala Gln
130 135 140

Tyr Leu Cys Asn Glu Tyr Gln Lys Gly Asn Glu Thr Ile Val Asn Leu
145 150 155 160

Ile His Ser Thr Arg Ile His Ile Met Pro Ser Leu Asn Pro Asp Gly
165 170 175

Phe Glu Lys Ala Ala Ser Gln Pro Gly Glu Leu Lys Asp Trp Phe Val
180 185 190

Gly Arg Ser Asn Ala Gln Gly Ile Asp Leu Asn Arg Asn Phe Pro Asp
195 200 205

Leu Asp Arg Ile Val Tyr Val Asn Glu Lys Glu Gly Gly Pro Asn Asn
210 215 220

His Leu Leu Lys Asn Met Lys Lys Ile Val Asp Gln Asn Thr Lys Leu
225 230 235 240

Ala Pro Glu Thr Lys Ala Val Ile His Trp Ile Met Asp Ile Pro Phe
245 250 255

Val Leu Ser Ala Asn Leu His Gly Gly Asp Leu Val Ala Asn Tyr Pro
260 265 270

Tyr Asp Glu Thr Arg Ser Gly Ser Ala His Glu Tyr Ser Ser Ser Pro
275 280 285

Asp Asp Ala Ile Phe Gln Ser Leu Ala Arg Ala Tyr Ser Ser Phe Asn
290 295 300

Pro Ala Met Ser Asp Pro Asn Arg Pro Pro Cys Arg Lys Asn Asp Asp
305 310 315 320

Asp Ser Ser Phe Val Asp Gly Thr Thr Asn Gly Gly Ala Trp Tyr Ser
325 330 335

Val Pro Gly Gly Met Gln Asp Phe Asn Tyr Leu Ser Ser Asn Cys Phe
340 345 350

Glu Ile Thr Val Glu Leu Ser Cys Glu Lys Phe Pro Pro Glu Glu Thr
355 360 365

Leu Lys Thr Tyr Trp Glu Asp Asn Lys Asn Ser Leu Ile Ser Tyr Leu
370 375 380

Glu Gln Ile His Arg Gly Val Lys Gly Phe Val Arg Asp Leu Gln Gly
385 390 395 400

Asn Pro Ile Ala Asn Ala Thr Ile Ser Val Glu Gly Ile Asp His Asp
405 410 415

Val Thr Ser Ala Lys Asp Gly Asp Tyr Trp Arg Leu Leu Ile Pro Gly
420 425 430

Asn Tyr Lys Leu Thr Ala Ser Ala Pro Gly Tyr Leu Ala Ile Thr Lys
435 440 445

Lys Val Ala Val Pro Tyr Ser Pro Ala Ala Gly Val Asp Phe Glu Leu
450 455 460

Glu Ser Phe Ser Glu Arg Lys Glu Glu Glu Lys Glu Glu Leu Met Glu
465 470 475 480

Trp Trp Lys Met Met Ser Glu Thr Leu Asn Phe
485 490

<210> 1716
<211> 179
<212> PRT
<213> Homo sapiens

<400> 1716
Ala Ala Glu Glu Thr Gly Gly Ala Gln Pro Glu Gly Arg Gly Val Gly
1 5 10 15

Pro Lys Glu Arg Glu Leu Gln His Ala Ala Leu Gly Gly Thr Ala Ile
20 25 30

Gln Pro Cys Phe Phe Gln Asp Ile Ser Met Glu Ile Pro Gln Glu Phe
35 40 45

Gln Lys Thr Val Ser Thr Met Tyr Tyr Leu Trp Met Cys Ser Thr Leu
50 55 60

Ala Leu Leu Leu Asn Phe Leu Ala Cys Leu Ala Ser Phe Cys Val Glu
65 70 75 80

Thr Asn Asn Gly Ala Gly Phe Gly Leu Ser Ile Leu Trp Val Leu Leu
85 90 95

Phe Thr Pro Cys Ser Phe Val Cys Trp Tyr Arg Pro Met Tyr Lys Ala
100 105 110

Phe Arg Ser Asp Ser Ser Phe Asn Phe Phe Val Phe Phe Phe Ile Phe
115 120 125

Phe Val Gln Asp Val Leu Phe Val Leu Gln Ala Ile Gly Ile Pro Gly
130 135 140

Trp Gly Phe Ser Gly Trp Ile Ser Ala Leu Val Val Pro Lys Ala Thr
145 150 155 160

Gln Gln Tyr Pro Cys Ser Cys Cys Trp Ser Pro Cys Ser Ser Leu Ala
165 170 175

Leu Leu Cys

<210> 1717
<211> 499
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (11)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (485)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (486)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1717
Arg Pro Val Arg Asn Ser Arg Val Thr Thr Xaa Pro Pro Ala Gln Gln
1 5 10 15

Thr Arg Arg Asp Gln Ser Val Pro Val Gly Ser Met Ala Thr Lys Cys
20 25 30

Gly Asn Cys Gly Pro Gly Tyr Ser Thr Pro Leu Glu Ala Met Lys Gly
35 40 45

Pro Arg Glu Glu Ile Val Tyr Leu Pro Cys Ile Tyr Arg Asn Thr Gly
50 55 60

Thr Glu Ala Pro Asp Tyr Leu Ala Thr Val Asp Val Asp Pro Lys Ser
65 70 75 80

Pro Gln Tyr Cys Gln Val Ile His Arg Leu Pro Met Pro Asn Leu Lys
85 90 95

Asp Glu Leu His His Ser Gly Trp Asn Thr Cys Ser Ser Cys Phe Gly
100 105 110

Asp Ser Thr Lys Ser Arg Thr Lys Leu Val Leu Pro Ser Leu Ile Ser
115 120 125

Ser Arg Ile Tyr Val Val Asp Val Gly Ser Glu Pro Arg Ala Pro Lys
130 135 140

Leu His Lys Val Ile Glu Pro Lys Asp Ile His Ala Lys Cys Glu Leu
145 150 155 160

Ala Phe Leu His Thr Ser His Cys Leu Ala Ser Gly Glu Val Met Ile
165 170 175

Ser Ser Leu Gly Asp Val Lys Gly Asn Gly Lys Gly Gly Phe Val Leu

180 185 190

Leu Asp Gly Glu Thr Phe Glu Val Lys Gly Thr Trp Glu Arg Pro Gly
195 200 205

Gly Ala Ala Pro Leu Gly Tyr Asp Phe Trp Tyr Gln Pro Arg His Asn
210 215 220

Val Met Ile Ser Thr Glu Trp Ala Ala Pro Asn Val Leu Arg Asp Gly
225 230 235 240

Phe Asn Pro Ala Asp Val Glu Ala Gly Leu Tyr Gly Ser His Leu Tyr
245 250 255

Val Trp Asp Trp Gln Arg His Glu Ile Val Gln Thr Leu Ser Leu Lys
260 265 270

Asp Gly Leu Ile Pro Leu Glu Ile Arg Phe Leu His Asn Pro Asp Ala
275 280 285

Ala Gln Gly Phe Val Gly Cys Ala Leu Ser Ser Thr Ile Gln Arg Phe
290 295 300

Tyr Lys Asn Glu Gly Gly Thr Trp Ser Val Glu Lys Val Ile Gln Val
305 310 315 320

Pro Pro Lys Lys Val Lys Gly Trp Leu Leu Pro Glu Met Pro Gly Leu
325 330 335

Ile Thr Asp Ile Leu Leu Ser Leu Asp Asp Arg Phe Leu Tyr Phe Ser
340 345 350

Asn Trp Leu His Gly Asp Leu Arg Gln Tyr Asp Ile Ser Asp Pro Gln
355 360 365

Arg Pro Arg Leu Thr Gly Gln Leu Phe Leu Gly Gly Ser Ile Val Lys
370 375 380

Gly Gly Pro Val Gln Val Leu Glu Asp Glu Glu Leu Lys Ser Gln Pro
385 390 395 400

Glu Pro Leu Val Val Lys Gly Lys Arg Val Ala Gly Gly Pro Gln Met
405 410 415

Ile Gln Leu Ser Leu Asp Gly Lys Arg Leu Tyr Ile Thr Thr Ser Leu
420 425 430

Tyr Ser Ala Trp Asp Lys Gln Phe Tyr Pro Asp Leu Ile Arg Glu Gly
435 440 445

Ser Val Met Leu Gln Val Asp Val Asp Thr Val Lys Gly Gly Leu Lys

450 455 460

Leu Asn Pro Asn Phe Leu Val Asp Phe Gly Lys Glu Pro Leu Gly Pro
465 470 475 480

Ala Leu Ala His Xaa Xaa Arg Tyr Pro Gly Gly Asp Cys Ser Ser Asp
485 490 495

Ile Trp Ile

<210> 1718
<211> 213
<212> PRT
<213> Homo sapiens

<400> 1718
Phe Ile Met Asp Asn Leu Ser Ser Glu Glu Ile Gln Gln Arg Ala His
1 5 10 15

Gln Ile Thr Asp Glu Ser Leu Glu Ser Thr Arg Arg Ile Leu Gly Leu
20 25 30

Ala Ile Glu Ser Gln Asp Ala Gly Ile Lys Thr Ile Thr Met Leu Asp
35 40 45

Glu Gln Lys Glu Gln Leu Asn Arg Ile Glu Glu Gly Leu Asp Gln Ile
50 55 60

Asn Lys Asp Met Arg Glu Thr Glu Lys Thr Leu Thr Glu Leu Asn Lys
65 70 75 80

Cys Cys Gly Leu Cys Val Cys Pro Cys Asn Arg Thr Lys Asn Phe Glu
85 90 95

Ser Gly Lys Ala Tyr Lys Thr Thr Trp Gly Asp Gly Gly Glu Asn Ser
100 105 110

Pro Cys Asn Val Val Ser Lys Gln Pro Gly Pro Val Thr Asn Gly Gln
115 120 125

Leu Gln Gln Pro Thr Thr Gly Ala Ala Ser Gly Gly Tyr Ile Lys Arg
130 135 140

Ile Thr Asn Asp Ala Arg Glu Asp Glu Met Glu Glu Asn Leu Thr Gln
145 150 155 160

Val Gly Ser Ile Leu Gly Asn Leu Lys Asp Met Ala Leu Asn Ile Gly
165 170 175

Asn Glu Ile Asp Ala Gln Asn Pro Gln Ile Lys Arg Ile Thr Asp Lys
180 185 190

Ala Asp Thr Asn Arg Asp Arg Ile Asp Ile Ala Asn Ala Arg Ala Lys
195 200 205

Lys Leu Ile Asp Ser
210

<210> 1719
<211> 102
<212> PRT
<213> Homo sapiens

<400> 1719
Gly Met Glu Gly Thr Glu Met Gly Ala Arg Pro Gly Gly His Pro Gln
1 5 10 15

Lys Trp Ser Phe Leu Trp Ser Leu Ala Leu Trp Leu Pro Leu Ala Leu
20 25 30

Ser Val Ser Leu Phe Leu Gly Leu Ser Leu Ser Pro Pro Gln Pro Gly
35 40 45

Leu Ser Leu Trp Cys Thr Leu Ser Tyr Cys Cys Glu Gln Trp Lys Phe
50 55 60

Lys Gly Thr Pro Ser Pro Ala Leu Leu Asn Leu Gly Thr Gln Pro Lys
65 70 75 80

Lys Asp Lys Lys Leu Glu Asp Ser Ile Ala Thr Gln Leu Arg Glu Leu
85 90 95

Pro Glu Lys Asn Ser Asn
100

<210> 1720
<211> 20
<212> PRT
<213> Homo sapiens

<400> 1720
Ala Gln Trp Leu Thr Pro Val Ile Leu Ala Phe Trp Lys Ala Glu Ala
1 5 10 15

Gly Gly Ser Leu

20

<210> 1721
<211> 50
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (40)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1721
Ile Arg His Glu Val Leu Ile Val Pro Leu Leu Val Gly Leu Arg Gln
1 5 10 15

Glu Asp His Leu Ser Pro Gly Gly Arg Gly Tyr Ser Glu Pro Arg Val
20 25 30

His Tyr Cys Thr Pro Ala Arg Xaa Arg Glu Arg Asp Pro Val Ser Ile
35 40 45

Asn Lys
50

<210> 1722
<211> 56
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (2)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1722
Glu Xaa Gly Thr Glu Ser His Tyr Val Thr Gln Ala Gly Val Gln Trp
1 5 10 15

His Asp Leu Ser Ser Leu Gln Pro Ser Pro Pro Gly Phe Lys Arg Phe
20 25 30

Ser Cys Leu Arg Leu Leu Ser Ser Trp Asp Tyr Arg His Thr Pro Pro
35 40 45

Arg Pro Ala Asn Phe Leu Tyr Phe
50 55

<210> 1723
<211> 111
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (9)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (10)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (11)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (50)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (67)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (110)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1723
Gly Ser Thr His Ala Ser Ala Met Xaa Xaa Xaa Thr Ser Gly Val Gly
1   5   10   15

Asp Glu Trp Trp Pro Lys Gln Gly Asp Ser Lys Gly Arg Ser Gly Gly
            20   25   30

Arg Pro Trp Arg Thr Ala Ala Arg Ser Gly Leu Thr Gly Ala Ser Ser
        35   40   45

Arg Xaa Arg Trp Thr Thr Ala Pro Arg Trp Ile Ser Ala Tyr Pro Ser
    50   55   60

Val Arg Xaa Ala Lys Glu Gly Arg Leu Gln Glu Val Ile Glu Thr Leu
65 70 75 80

Leu Ser Leu Glu Lys Gln Thr Arg Thr Ala Ser Asp Met Val Ser Thr
85 90 95

Ser Arg Ile Leu Val Ala Ser Ser Gly Arg Cys Ala Asn Xaa Gly
100 105 110

<210> 1724
<211> 75
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (7)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (70)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1724
Gly Arg Gly Arg Cys Glu Xaa Gly Lys Met Ala Ala Ala Ala Val Val
1 5 10 15

Glu Phe Gln Arg Ala Gln Ser Leu Leu Ser Thr Asp Arg Glu Ala Ser
20 25 30

Ile Asp Ile Leu His Ser Ile Val Lys Arg Asp Ile Gln Glu Asn Asp
35 40 45

Glu Glu Ala Val Gln Val Lys Glu Gln Ser Ile Leu Glu Leu Gly Ser
50 55 60

Leu Leu Ala Lys Thr Xaa Gln Ala Ala Glu Leu
65 70 75

<210> 1725
<211> 63
<212> PRT
<213> Homo sapiens

<220>
<221> SITE

<222> (59)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1725
Pro Gly Ser Arg His His Arg Ala Arg Asp Arg Leu Ile His Phe Gly
1   5   10   15

Ala Val Ser Thr Asp Val Leu Gly Cys Ser Ala His Cys Ser Leu Thr
            20   25   30

Gln Ser Pro Lys Met Asn Ile Gln Glu Gln Gly Phe Pro Leu Asp Leu
        35   40   45

Gly Ala Ser Phe Thr Glu Asp Ala Pro Pro Xaa Pro Ser Ala Trp
    50   55   60

<210> 1726
<211> 170
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (11)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (60)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (89)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (102)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (103)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (106)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (113)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (115)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (116)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (118)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (128)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (140)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (153)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (156)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (162)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (169)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1726

Ala Glu Pro Asp Gly Ser His Pro Val Val Xaa Ala Pro Tyr Asn Gly
1 5 10 15

Gly Pro Ala Gly Thr Cys Pro Lys Ile Lys Gln Glu Ala Val Ser Ser
20 25 30

Cys Thr His Leu Gly Ala Gly Pro Pro Leu Gln Gln Trp Pro Pro Ala
35 40 45

Gly Cys His Thr Asp Phe Pro Leu Gly Thr Ala Xaa Pro Gln Gln Asp
50 55 60

Leu Pro Arg Thr Leu Gly Leu Glu Gly Ser Ala Glu Gln Gln Gly Thr
65 70 75 80

Val His Pro Ala Leu Pro Val Ser Xaa Arg Val Ser Ile Pro Thr Arg
85 90 95

Gly Pro Asn Leu Pro Xaa Xaa Phe Leu Xaa Pro Ile Gln Met Gln Pro
100 105 110

Xaa Val Xaa Xaa Arg Xaa Ile Asn Gln Gly Val Tyr Ala Asn Arg Xaa
115 120 125

Leu Asp Ala Lys Gly Gly Pro Ser Gln Arg Gly Xaa Arg Arg Leu Trp
130 135 140

Ala Pro Glu Lys Asp Arg Gln Pro Xaa Phe Asp Xaa Gly Val Trp Glu
145 150 155 160

Lys Xaa Ser Lys Lys Gly Phe Ser Xaa Phe
165 170

<210> 1727
<211> 98
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (83)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (97)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (98)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1727
Leu Arg Ala Arg Gly Ala Ala Trp Ala Gly Gly Leu Leu His Arg Ala
1 5 10 15

Ala Pro Cys Ser Leu Leu Pro Arg Leu Arg Thr Trp Thr Ser Ser Ser
20 25 30

Asn Arg Ser Arg Glu Asp Ser Trp Leu Lys Ser Leu Phe Val Arg Lys
35 40 45

Val Asp Pro Arg Lys Asp Ala His Ser Asn Leu Leu Ser Lys Lys Glu
50 55 60

Thr Ser Asn Leu Tyr Lys Leu Gln Phe His Asn Val Lys Pro Glu Cys
65 70 75 80

Leu Glu Xaa Tyr Asn Lys Ile Cys Gln Glu Val Leu Pro Lys Ile His
85 90 95

Xaa Xaa

<210> 1728
<211> 125
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (118)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1728
Gly Ser Leu Phe Pro Arg Val Leu Pro Ser Pro Leu Gly Pro Pro Gly
1 5 10 15

Gly Lys His Gly Val Cys Pro Gly Ala Val Arg Glu Gln Cys Pro Thr
20 25 30

Ala Leu Ser Ser Arg Phe Val Lys Phe Ser Met Pro Ser Val Pro Asp
35 40 45

Phe Glu Thr Leu Phe Ser Gln Val Gln Leu Phe Ile Ser Thr Cys Asn

50 55 60

Gly Glu His Ile Arg Tyr Ala Thr Asp Thr Phe Ala Gly Leu Cys His
65 70 75 80

Gln Leu Thr Asn Ala Leu Val Glu Arg Lys Gln Pro Leu Arg Gly Ile
85 90 95

Gly Ile Leu Lys Gln Ala Ile Asp Lys Met Gln Met Asn Thr Asn Gln
100 105 110

Leu Thr Ser Ile His Xaa Asp Leu Cys Gln Leu Val Cys
115 120 125

<210> 1729
<211> 55
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (52)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1729
Ile Leu Thr Met Arg Glu Ile Val His Ile Gln Ala Gly Gln Cys Gly
1 5 10 15

Asn Gln Ile Gly Ala Lys Phe Trp Glu Val Ile Ser Asp Glu His Gly
20 25 30

His Arg Pro His Arg Ala Pro Thr Thr Gly Asp Ser Asp Leu Pro Ala
35 40 45

Gly Thr Ala Xaa Ser Val Tyr
50 55

<210> 1730
<211> 128
<212> PRT
<213> Homo sapiens

<400> 1730
Arg Ile Ala Ala Ser Glu Thr Arg Val Ala Pro Ser Val Leu Arg Leu
1 5 10 15

Ala Met Thr Ser Tyr Ser Tyr Arg Gln Ser Ser Ala Thr Ser Ser Phe

20 25 30

Gly Gly Leu Gly Gly Gly Ser Val Arg Phe Gly Pro Gly Val Ala Phe
35 40 45

Arg Ala Pro Ser Ile His Gly Gly Ser Gly Gly Arg Gly Val Ser Val
50 55 60

Ser Ser Ala Arg Phe Val Ser Ser Ser Ser Ser Gly Gly Tyr Gly Gly
65 70 75 80

Gly Tyr Gly Gly Val Leu Thr Ala Ser Asp Gly Leu Leu Ala Gly Asn
85 90 95

Glu Lys Leu Thr Met Gln Asn Leu Asn Asp Arg Leu Ala Ser Tyr Leu
100 105 110

Asp Lys Val Arg Ala Leu Glu Ala Ala Asn Gly Glu Leu Glu Val Lys
115 120 125

<210> 1731
<211> 156
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (38)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (134)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (143)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1731
Ser Thr His Ala Ser Ala His Ala Ser Glu Trp Ser Glu Glu Gln Leu
1 5 10 15

Ile Ala Ala Lys Phe Cys Phe Ala Gly Leu Leu Ile Gly Gln Thr Glu
20 25 30

Val Asp Ile Met Ser Xaa Ala Thr Gln Ala Ile Phe Glu Ile Leu Glu
35 40 45

Lys Ser Trp Leu Pro Gln Asn Cys Thr Leu Val Asp Met Lys Ile Glu
50 55 60

Phe Gly Val Asp Val Thr Thr Lys Glu Ile Val Leu Ala Asp Val Ile
65 70 75 80

Asp Asn Asp Ser Trp Arg Leu Trp Pro Ser Gly Asp Arg Ser Gln Gln
85 90 95

Lys Asp Lys Gln Ser Tyr Arg Asp Leu Lys Glu Val Thr Pro Glu Gly
100 105 110

Leu Gln Met Val Lys Arg Asn Phe Glu Trp Val Ala Glu Arg Val Glu
115 120 125

Leu Leu Leu Lys Ser Xaa Ser Gln Cys Arg Val Val Val Leu Xaa Gly
130 135 140

Ser Thr Ser Asp Leu Gly His Cys Glu Lys Ile Gln
145 150 155

<210> 1732
<211> 101
<212> PRT
<213> Homo sapiens

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<400> 1732
Val Asp Ile Arg Lys Asp Leu Tyr Ala Asn Thr Val Leu Ser Gly Gly
1 5 10 15

Thr Thr Met Tyr Pro Gly Ile Ala Asp Arg Met Gln Xaa Glu Ile Thr
20 25 30

Ala Leu Ala Pro Ser Thr Met Lys Ile Lys Ile Ile Ala Pro Pro Glu
35 40 45

Arg Lys Tyr Ser Val Trp Ile Gly Gly Ser Ile Leu Ala Ser Leu Ser
50 55 60

Thr Phe Gln Xaa Xaa Trp Ile Thr Ser Arg Ser Thr Thr Xaa Arg Xaa
65 70 75 80

Pro Pro Ser Ser Thr Ala Asn Ala Ser Asn Xaa Leu Xaa Xaa Ala Tyr
85 90 95

His Cys Cys Met Gly
100

<210> 1733
<211> 101
<212> PRT
<213> Homo sapiens

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<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1733
Ala Arg Arg Arg Gln Lys Gly Pro Ala Ala Pro Glu Ser Lys Pro Val
1 5 10 15

Pro Ala Gln Ser Arg Pro Ala Ala Val Cys Leu Leu Phe Gln His Asp
20 25 30

Arg Cys Arg Cys Val Leu Arg Gln Gly Leu Pro Gly Arg Trp Ser Gly
35 40 45

Arg Ser His Leu Lys Thr Ala Val Xaa Pro Ser Ser Gly Ser Ser Cys
50 55 60

Cys Cys Ser Cys Asn Ala Ser Lys Gln Ile Thr Ala Asp Lys Gln Cys
65 70 75 80

Lys Gly Ile Ile Asp Cys Val Val Arg Ile Pro Lys Glu Gln Asp Ser
85 90 95

Val Leu Leu Ala Xaa
100

<210> 1734
<211> 152
<212> PRT
<213> Homo sapiens

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<400> 1734
Ala Arg Val His Leu Glu Leu Gln Glu Ala Arg Val Met Leu Val Pro
1 5 10 15

Leu Val Asn Val Asp Leu Leu Asp Trp Gln Gly Pro Gln Asp Leu Glu
20 25 30

Val Glu Leu Val Pro Leu Val Pro Lys Glu Glu Arg Val Leu Leu Val
35 40 45

Leu Leu Gly His Leu Val Leu Leu Val Leu Leu Val Cys Lys Glu Cys
50 55 60

Leu Glu Lys Glu Glu Val Leu Glu Val Leu Val Gln Arg Val Thr Arg
65 70 75 80

Val Asn Gln Ala Val Gln Val Leu Met Val Ser Gln Gly Lys Met Ala
85 90 95

Gln Gly Val Leu Xaa Val Leu Leu Val Leu Leu Ala Gln Leu Ala Ser
100 105 110

Leu Glu Ile Lys Gly Glu Gly Gly Ala Pro Gly Phe Pro Xaa Ile Ser
115 120 125

Trp Thr Cys Gly Xaa Pro Gly Glu Arg Gly Glu Met Ala Xaa Gln Asp
130 135 140

Xaa Trp Phe Xaa Trp Cys Ser Trp
145 150

<210> 1735

<211> 26
<212> PRT
<213> Homo sapiens

<400> 1735
Val Arg Ala Arg Val Pro Ser Pro Ala Ala Ala Met Gly Cys Thr Leu
1 5 10 15

Ser Ala Glu Asp Lys Ala Ala Val Glu Arg
20 25

<210> 1736
<211> 95
<212> PRT
<213> Homo sapiens

<400> 1736
His Glu Val Ser Ala Ala Ser Leu Val Pro Ala Val Pro Gln Pro Glu
1 5 10 15

Ala Asp Asn Leu Thr Leu Arg Tyr Arg Ser Leu Val Tyr Gln Leu Asn
20 25 30

Phe Asp Gln Thr Leu Arg Asn Val Asp Lys Ala Gly Thr Trp Ala Pro
35 40 45

Arg Glu Leu Val Leu Val Val Gln Val His Asn Arg Pro Glu Tyr Leu
50 55 60

Arg Leu Leu Leu Asp Ser Leu Arg Lys Ala Gln Gly Ile Asp Asn Val
65 70 75 80

Leu Val Ile Phe Ser His Asp Ser Gly Arg Pro Arg Ser Ile Ser
85 90 95

<210> 1737
<211> 77
<212> PRT
<213> Homo sapiens

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<222> (77)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1737
Ile Ala Ser Gly Arg Ser Arg Gly Ser Lys Leu Thr Tyr Ala Cys Met

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  1               5                  10                  15
Arg Arg His Ser Ser Ser Ile Glu Ser Pro Lys Phe Asn Ser Leu Ala
            20                  25                  30
Val Val Leu Gln Arg Arg Asp Trp Glu Asn Pro Gly Val Thr Gln Leu
        35                  40                  45
Asn Arg Leu Ala Ala His Pro Pro Phe Ala Ser Trp Arg Asn Ser Glu
    50                  55                  60
Glu Ala Arg Thr Asp Arg Pro Ser Gln Gln Leu Arg Xaa
65                  70                  75
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<210> 1738
<211> 55
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<213> Homo sapiens

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<223> Xaa equals any of the naturally occurring L-amino acids

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<222> (55)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1738
Leu Ile Xaa His Ile Gly Xaa Gly Xaa Cys Ser Thr Val Xaa Ile Pro
1 5 10 15

Gly Ser Arg Asp Pro Ser Leu Arg Thr Ala His Ala Arg His Ser Ser
20 25 30

Ser Ile Val Ser Pro Lys Phe Asn Ser Leu Ala Val Val Leu Gln Arg
35 40 45

Arg Asp Trp Glu Asn Xaa Xaa
50 55

<210> 1739
<211> 37
<212> PRT
<213> Homo sapiens

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<222> (8)
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<222> (34)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (37)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1739
Ser Arg Gly Ser Lys Leu Thr Xaa Ala Cys Met Arg Arg His Ser Ser
1 5 10 15

Ser Ile Val Ser Ala Lys Phe Asn Ser Leu Ala Val Val Leu Gln Arg
20 25 30

Arg Xaa Trp Glu Xaa
35

<210> 1740
<211> 110
<212> PRT
<213> Homo sapiens

<400> 1740
Leu Thr Glu Thr Arg Phe Lys Thr Gly Thr Thr Leu Lys Tyr Thr Cys
1   5   10   15

Leu Pro Gly Tyr Val Arg Ser His Ser Thr Gln Thr Leu Thr Cys Asn
            20   25   30

Ser Asp Gly Glu Trp Val Tyr Asn Thr Phe Cys Ile Tyr Lys Arg Cys
        35   40   45

Arg His Pro Gly Glu Leu Arg Asn Gly Gln Val Glu Ile Lys Thr Asp
    50   55   60

Leu Ser Phe Gly Ser Gln Ile Glu Phe Ser Cys Ser Glu Gly Phe Phe
65   70   75   80

Leu Ile Gly Ser Thr Thr Ser Arg Cys Glu Val Gln Asp Arg Gly Val
                85   90   95

Gly Trp Ser His Pro Leu Pro Gln Cys Glu Ile Val Gln Val
            100   105   110

<210> 1741
<211> 49
<212> PRT
<213> Homo sapiens

<220>
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<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<222> (40)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1741

Gln Val His Leu Asp Gln Val Glu Val Ala Ser Xaa Leu Thr Leu Cys
1 5 10 15

Lys Glu Gly Cys Xaa Ala Ile Val Asp Thr Gly Thr Ser Leu Met Val
20 25 30

Gly Pro Val Asp Xaa Val Arg Xaa Cys Arg Arg Pro Ser Gly Pro Cys
35 40 45

Arg

<210> 1742
<211> 90
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (6)
<223> Xaa equals any of the naturally occurring L-amino acids

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<223> Xaa equals any of the naturally occurring L-amino acids

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<222> (72)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<222> (78)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE

<222> (85)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1742
Gly Pro Ser Thr Arg Xaa Xaa Met Ile Glu Tyr Asp Pro Glu Arg Arg
1   5   10   15

Leu Gly Ile Phe Trp Val Ser Cys Glu Ala Gly Thr Tyr Ile Arg Thr
            20   25   30

Leu Cys Val His Leu Gly Leu Leu Leu Gly Val Gly Gly Gln Met Gln
        35   40   45

Glu Leu Arg Arg Val Arg Ser Gly Val Met Ser Xaa Lys Asp His Xaa
    50   55   60

Val Thr Met His Asp Val Leu Xaa Ala Gln Trp Leu Tyr Xaa Asn His
65   70   75   80

Lys Asp Glu Ser Xaa Leu Arg Gly Val Val
                85   90

<210> 1743
<211> 116
<212> PRT
<213> Homo sapiens

<220>
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<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1743
Ala Gly Ser Val Arg Arg Pro Cys Arg Arg Pro Trp Gly Xaa Arg Ala
1   5   10   15

Gly Glu Arg Met Xaa Gly Ala Gly Glu Glu Asp Pro Ala Ala Ala Phe
            20   25   30

Leu Ala Gln Xaa Arg Ser Glu Ile Ala Gly Ile Glu Asn Asp Glu Ala
        35   40   45

Phe Ala Ile Leu Glu Arg Arg Arg Pro Arg Ala Pro Thr Ala Arg Lys
    50   55   60

Val Arg Arg Gly Val Pro Met Leu Leu Xaa Gly Xaa Met Xaa Trp Trp
65   70   75   80

Ile Xaa Thr Xaa Lys Leu Met Val Pro Thr Xaa Ile Met Gln Tyr Phe
                85   90   95

Lys Met Asp Arg Leu His Gln Asn Leu Lys Tyr Pro Lys Trp Arg Xaa
100 105 110

Lys Met Glu Xaa
115

<210> 1744
<211> 125
<212> PRT
<213> Homo sapiens

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<400> 1744
Arg Val Thr Thr Gly Thr Xaa Xaa Val Leu Val Ala Val Asp Lys Gly

1 5 10 15

Val Phe Val Leu Asn Lys Xaa Asn Lys Leu Thr Gln Ser Lys Ile Trp
20 25 30

Asp Val Val Glu Lys Ala Asp Ile Gly Cys Thr Pro Gly Ser Gly Lys
35 40 45

Asp Tyr Ala Gly Val Phe Ser Asp Ala Gly Leu Thr Xaa Thr Ser Ser
50 55 60

Ser Gly Gln Gln Thr Ala Gln Xaa Ala Glu Leu Gln Cys Pro Gln Pro
65 70 75 80

Ala Ala Arg Arg Arg Xaa Ser Val Gln Leu Thr Glu Lys Arg Met Asp
85 90 95

Lys Val Gly Lys Tyr Pro Lys Glu Leu Xaa Lys Cys Cys Glu Asp Gly
100 105 110

Ile Arg Glu Asn Pro Met Lys Phe Ser Cys Gln Gly Gly
115 120 125

<210> 1745
<211> 74
<212> PRT
<213> Homo sapiens

<400> 1745
Gly Ala Ala Val Ser Val Lys Met Ile Glu Val Leu Thr Thr Thr Asp
1 5 10 15

Ser Gln Lys Leu Leu His Gln Leu Asn Ala Leu Leu Glu Gln Glu Ser
20 25 30

Arg Cys Gln Pro Lys Val Cys Gly Leu Arg Leu Ile Glu Ser Ala His
35 40 45

Asp Asn Gly Leu Arg Met Thr Ala Arg Leu Arg Asp Phe Glu Val Lys
50 55 60

Asp Leu Leu Ser Leu Thr Gln Phe Leu Ala
65 70

<210> 1746
<211> 38
<212> PRT

<213> Homo sapiens

<400> 1746
Phe Phe Gly His Pro Glu Val Tyr Ile Leu Ile Leu Pro Gly Phe Gly
1   5   10   15

Ile Ile Ser His Ile Val Thr Tyr Tyr Ser Gly Lys Lys Glu Pro Phe
            20   25   30

Gly Tyr Ile Gly Met Val
        35

<210> 1747
<211> 35
<212> PRT
<213> Homo sapiens

<400> 1747
Leu Val Pro Asn Ser Ala Arg Glu Thr Phe Leu Thr Ile Cys Phe Ile
1   5   10   15

Arg Gln Leu Ile Phe His Phe Thr Ser Lys His His Phe Gly Phe Glu
            20   25   30

Ala Ala Ala
        35

<210> 1748
<211> 183
<212> PRT
<213> Homo sapiens

<220>
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<400> 1748
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Ala Arg Val Glu Asn Arg Ala Gln Gln His Trp Gly Ser Gly Val Gly
 1               5                  10                  15

Val Lys Lys Leu Cys Glu Leu Gln Pro Glu Glu Lys Cys Cys Val Val
            20                  25                  30

Gly Thr Leu Phe Lys Ala Met Pro Leu Gln Pro Ser Ile Leu Arg Glu
        35                  40                  45

Val Ser Glu Glu His Asn Leu Leu Pro Gln Pro Pro Arg Ser Lys Tyr
    50                  55                  60

Ile His Pro Asp Asp Glu Leu Val Leu Glu Asp Glu Leu Gln Arg Ile
65                  70                  75                  80

Lys Leu Lys Gly Thr Ile Asp Val Ser Lys Leu Val Thr Gly Thr Val
                85                  90                  95

Leu Ala Val Phe Gly Ser Val Arg Asp Asp Gly Lys Phe Leu Val Glu
            100                 105                 110
```

Asp Tyr Cys Phe Val Asp Leu Ala Pro Gln Lys Pro Xaa Pro Pro Leu
115 120 125

Thr Gln Leu Gly Xaa Val Xaa Gly Val Arg Pro Gly Pro Gly Trp Arg
130 135 140

Trp Arg Arg Glu Xaa Val Gly His Pro Leu Leu Val Asp Xaa Val Thr
145 150 155 160

Gly Gln Phe Gly Asp Glu Gly Xaa His Ala Xaa Xaa Pro Ser Phe Pro
165 170 175

Val Ile Leu Val Xaa Thr Ser
180

<210> 1749
<211> 106
<212> PRT
<213> Homo sapiens

<400> 1749
His Glu Ala Glu Ala Ala Pro Val Gly Arg Ala Arg Gly Cys Cys Lys
1 5 10 15

Ala Glu Val Ala Ala Glu Ala Glu Thr Met Phe Arg Ala Ala Ala Pro
20 25 30

Gly Gln Leu Arg Arg Ala Ala Ser Leu Leu Arg Phe Gln Ser Thr Leu
35 40 45

Val Ile Ala Glu His Ala Asn Asp Ser Leu Ala Pro Ile Thr Leu Asn
50 55 60

Thr Ile Thr Ala Ala Thr Arg Leu Gly Gly Glu Val Ser Cys Leu Val
65 70 75 80

Ala Gly Thr Lys Cys Asp Lys Val Ala Gln Asp Leu Cys Lys Val Ala
85 90 95

Gly Ile Ala Lys Ser Ser Gly Gly Ser Ala
100 105

<210> 1750
<211> 99
<212> PRT
<213> Homo sapiens

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<400> 1750
Arg Ser Cys Gly Val Thr Ala Gln Lys Tyr Arg Cys Glu Leu Leu Tyr
  1               5                  10                  15

Glu Gly Pro Pro Asp Asp Glu Ala Ala Met Gly Ile Lys Ser Cys Asp
             20                  25                  30

Pro Lys Gly Pro Leu Met Met Tyr Ile Ser Lys Met Val Pro Thr Ser
         35                  40                  45

Asp Lys Gly Arg Phe Tyr Ala Phe Gly Arg Val Phe Ser Gly Leu Val
     50                  55                  60

Ser Thr Gly Leu Lys Val Arg Ile Met Gly Pro Asn Tyr Thr Pro Gly
 65                  70                  75                  80

Lys Lys Glu Asp Leu Tyr Leu Lys Pro Ile Gln Arg Thr Ile Leu Met
                 85                  90                  95

Met Gly Arg



<210> 1751
<211> 124
<212> PRT
<213> Homo sapiens

<400> 1751
Ala Ala Gln Pro Arg Leu Met Glu Pro Ile Tyr Leu Val Glu Ile Gln
  1               5                  10                  15

Cys Pro Glu Gln Val Val Gly Gly Ile Tyr Gly Val Leu Asn Arg Lys
             20                  25                  30

Arg Gly His Val Phe Glu Glu Ser Gln Val Ala Gly Thr Pro Met Phe
         35                  40                  45

Val Val Lys Ala Tyr Leu Pro Val Asn Glu Ser Phe Gly Phe Thr Ala
     50                  55                  60

Asp Leu Arg Ser Asn Thr Gly Gly Gln Ala Phe Pro Gln Cys Val Phe
 65                  70                  75                  80

Asp His Trp Gln Ile Leu Pro Gly Asp Pro Phe Asp Asn Ser Ser Arg
                 85                  90                  95

Pro Ser Gln Val Val Ala Glu Thr Arg Lys Arg Lys Gly Leu Lys Glu
            100                 105                 110
```

Gly Ile Pro Ala Leu Asp Asn Phe Leu Asp Lys Leu
        115   120

<210> 1752
<211> 180
<212> PRT
<213> Homo sapiens

<400> 1752
Arg Glu Gln Lys Leu Glu Leu His Arg Gly Ala Ala Ala Leu Glu Leu
1   5   10   15

Val Asp Pro Pro Gly Cys Arg Asn Ser Ala Arg Ala Gln Phe Ala Arg
            20   25   30

Ser Leu Ser Ala Ala Pro Gln Leu Ser Asp Thr Ala Asp Thr Met Gly
        35   40   45

Phe Gly Asp Leu Lys Ser Pro Ala Gly Leu Gln Val Leu Asn Asp Tyr
    50   55   60

Leu Ala Asp Lys Ser Tyr Ile Glu Gly Tyr Val Pro Ser Gln Ala Asp
65   70   75   80

Val Ala Val Phe Glu Ala Val Ser Ser Pro Pro Pro Ala Asp Leu Cys
                85   90   95

His Ala Leu Arg Trp Tyr Asn His Ile Lys Ser Tyr Glu Lys Glu Lys
            100   105   110

Ala Ser Leu Pro Gly Val Lys Lys Ala Leu Gly Lys Tyr Gly Pro Ala
        115   120   125

Asp Val Glu Asp Thr Thr Gly Ser Gly Ala Thr Asp Ser Lys Asp Asp
    130   135   140

Asp Asp Ile Asp Leu Phe Gly Ser Asp Asp Glu Glu Glu Ser Glu Glu
145   150   155   160

Ala Lys Arg Leu Arg Glu Glu Arg Leu Ala Gln Tyr Glu Ser Lys Lys
                165   170   175

Ala Lys Lys Pro
            180

<210> 1753

<211> 126
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<220>
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<223> Xaa equals any of the naturally occurring L-amino acids

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<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1753
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Arg Xaa Lys Xaa Xaa Xaa Thr Ala Val Arg Xaa Ser Arg Leu Val Asp
 1               5                  10                  15

Pro Pro Gly Cys Arg Asn Trp His Glu Val Ser Phe Cys Asp Leu Cys
            20                  25                  30

Trp Asp Trp Lys Met Ser Ser Gly Asn Ala Lys Ile Gly His Pro Ala
        35                  40                  45

Pro Asn Phe Lys Ala Thr Ala Val Met Pro Asp Gly Gln Phe Lys Asp
    50                  55                  60

Ile Ser Leu Ser Asp Tyr Lys Gly Lys Tyr Val Val Phe Phe Phe Tyr
65                  70                  75                  80

Pro Leu Asp Phe Thr Phe Val Cys Pro Thr Glu Ile Ile Ala Phe Ser
                85                  90                  95

Asp Arg Ala Glu Glu Phe Lys Lys Leu Asn Cys Gln Val Ile Gly Ala
            100                 105                 110
```

Ser Val Asp Ser His Phe Cys His Leu Ala Trp Val Asn Thr
115 120 125

<210> 1754
<211> 62
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
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<223> Xaa equals any of the naturally occurring L-amino acids

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<220>
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<223> Xaa equals any of the naturally occurring L-amino acids

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<223> Xaa equals any of the naturally occurring L-amino acids

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<400> 1754
Trp Ile Pro Arg Ala Ala Gly Ile Arg His Ser Xaa Gly Gly Xaa Leu
1   5   10   15

Val His Pro Xaa Xaa Val Xaa Xaa Ala Ala His Cys Leu Lys Lys Asn
            20   25   30

Ser Gln Xaa Trp Leu Gly Arg His Asn Leu Xaa Glu Pro Xaa Asp Thr
        35   40   45

Xaa Gln Arg Val Pro Xaa Ser His Ser Phe Pro His Pro Leu
    50   55   60

<210> 1755
<211> 42
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<222> (6)
<223> Xaa equals any of the naturally occurring L-amino acids

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<222> (29)
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<220>
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<400> 1755
Glu Xaa Cys Val Ser Xaa Leu Gly Cys Trp Arg Phe Asn Pro Gln Cys
1 5 10 15

Phe His Xaa Asn Arg Gly Pro Ile Lys Phe Asn Val Xaa Gly His Ser
20 25 30

Arg Pro Gly Glu Phe Arg Gly Leu Glu Xaa
35 40

<210> 1756
<211> 174
<212> PRT
<213> Homo sapiens

<400> 1756
Arg Glu Gln Lys Leu Glu Leu His Arg Gly Ala Ala Ala Leu Glu Leu
1 5 10 15

Val Asp Pro Pro Gly Cys Arg Asn Ser Ala Arg Ala Gly Met Gln Lys
20 25 30

Ala Asp Val Tyr Ser Phe Gly Ile Ile Leu Gln Glu Ile Ala Leu Arg
35 40 45

Ser Gly Pro Phe Tyr Leu Glu Gly Leu Asp Leu Ser Pro Lys Glu Ile
50 55 60

Val Gln Lys Val Arg Asn Gly Gln Arg Pro Tyr Phe Arg Pro Ser Ile
65 70 75 80

Asp Arg Thr Gln Leu Asn Glu Glu Leu Val Leu Leu Met Glu Arg Cys
85 90 95

Trp Ala Gln Asp Pro Ala Glu Arg Pro Asp Phe Gly Gln Ile Lys Gly
100 105 110

Phe Ile Arg Arg Phe Asn Lys Glu Gly Gly Thr Ser Ile Leu Asp Asn
115 120 125

Leu Leu Leu Arg Met Glu Gln Tyr Ala Asn Asn Leu Glu Lys Leu Val

130 135 140

Glu Glu Arg Thr Gln Ala Tyr Leu Glu Glu Lys Arg Lys Ala Glu Ala
145 150 155 160

Leu Leu Tyr Gln Ile Leu Pro His Ser Val Ala Glu Gln Leu
165 170

<210> 1757
<211> 128
<212> PRT
<213> Homo sapiens

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<400> 1757
Glu Thr Xaa Lys Xaa Phe Lys Asp Pro Asn Ala Pro Lys Arg Pro Pro
1 5 10 15

Ser Ala Phe Phe Leu Phe Cys Ser Glu Tyr Arg Pro Lys Ile Lys Gly
20 25 30

Glu His Pro Gly Leu Ser Ile Gly Asp Val Ala Lys Lys Leu Gly Glu
35 40 45

Met Trp Asn Asn Thr Ala Ala Asp Asp Lys Gln Pro Tyr Glu Lys Lys
50 55 60

Ala Ala Lys Leu Lys Glu Lys Tyr Glu Lys Asp Ile Ala Ala Tyr Arg
65 70 75 80

Ala Lys Gly Lys Pro Asp Ala Ala Lys Lys Gly Val Val Lys Ala Glu
85 90 95

Lys Ser Lys Lys Lys Lys Glu Glu Glu Glu Asp Glu Glu Asp Glu Glu
100 105 110

Asp Glu Glu Glu Glu Glu Asp Glu Glu Asp Glu Xaa Xaa Xaa His Xaa
115 120 125

<210> 1758
<211> 31
<212> PRT
<213> Homo sapiens

<400> 1758
Ala Arg Glu Asn Val Arg Pro Asp Tyr Leu Lys Ala Ile Trp Asn Val
1 5 10 15

Ile Asn Trp Glu Asn Val Thr Glu Arg Tyr Met Ala Cys Lys Lys
20 25 30

<210> 1759
<211> 64
<212> PRT
<213> Homo sapiens

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<400> 1759
Arg Glu Gln Lys Xaa Glu Leu His Arg Gly Ala Xaa Arg Ser Arg Thr
1 5 10 15

Ser Gly Ser Pro Gly Leu Gln Glu Phe Gly Thr Ser Ser Ala Arg Gln
20 25 30

Arg Xaa Lys Val Leu Ala His Phe Tyr Gly Val Lys Leu Glu Gly Lys
35 40 45

Val Pro Met His Lys Leu Phe Leu Glu Met Leu Glu Ala Met Met Asp
50 55 60

<210> 1760
<211> 106
<212> PRT
<213> Homo sapiens

<400> 1760
Lys Met Ala Ser Asn Lys Thr Thr Leu Gln Lys Met Gly Lys Lys Gln
1 5 10 15

Asn Gly Lys Ser Lys Lys Val Glu Glu Ala Glu Pro Glu Glu Phe Val
20 25 30

Val Glu Lys Val Leu Asp Arg Arg Val Val Asn Gly Lys Val Glu Tyr
35 40 45

Phe Leu Lys Trp Lys Gly Phe Thr Asp Ala Asp Asn Thr Trp Glu Pro
50 55 60

Glu Glu Asn Leu Asp Cys Pro Glu Leu Ile Glu Ala Phe Leu Asn Ser
65 70 75 80

Gln Lys Ala Gly Lys Glu Lys Asp Gly Thr Lys Arg Lys Ser Leu Ser
85 90 95

Asp Ser Gly Ser Asp Asp Ser Lys Gln Arg
100 105

<210> 1761
<211> 69
<212> PRT
<213> Homo sapiens

<400> 1761
Ala Pro Ala Ser Pro Leu Leu Glu Met Asp Pro Asn Cys Ser Cys Ala
1 5 10 15

Thr Gly Gly Ser Cys Thr Cys Ala Gly Ser Cys Lys Cys Lys Glu Cys
20 25 30

Lys Cys Thr Ser Cys Lys Lys Ser Cys Cys Ser Cys Cys Pro Val Gly
35 40 45

Cys Ala Lys Cys Ala Gln Gly Cys Val Cys Lys Gly Ala Ser Glu Lys
50 55 60

Cys Ser Cys Cys Ala
65

<210> 1762
<211> 41
<212> PRT
<213> Homo sapiens

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<400> 1762
Pro Cys Lys Gly Ser Ile Ile Thr Trp Ser Leu Ile Xaa Asp Leu Tyr
1 5 10 15

Glu Trp Leu His Glu Gly Ser Ser Xaa Leu Leu Leu Leu Thr Ser Glu
20 25 30

Asn Asp Leu Xaa Xaa Lys Arg Arg Ala
35 40

<210> 1763
<211> 154
<212> PRT
<213> Homo sapiens

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<400> 1763
Pro Thr Arg Pro Pro Thr Arg Pro Pro Ser Pro Asn Met Ala Ala Ser
1 5 10 15

Ala Lys Lys Lys Asn Lys Lys Gly Lys Thr Ile Ser Leu Thr Asp Phe
20 25 30

Leu Ala Glu Asp Gly Gly Thr Gly Gly Gly Ser Thr Tyr Val Ser Lys
35 40 45

Pro Val Ser Trp Ala Asp Glu Thr Asp Asp Leu Glu Gly Asp Val Ser
50 55 60

Thr Thr Trp His Ser Asn Asp Asp Asp Val Tyr Arg Ala Pro Pro Ile
65 70 75 80

Asp Arg Ser Ile Leu Pro Thr Ala Pro Arg Ala Ala Arg Glu Pro Asn
85 90 95

Ile Asp Arg Ser Arg Leu Pro Lys Ser Pro Pro Tyr Thr Ala Phe Leu
100 105 110

Gly Asn Leu Pro Tyr Asp Val Thr Glu Glu Ser Ile Lys Glu Phe Phe
115 120 125

Arg Gly Leu Asn Ile Ser Ala Val Arg Leu Pro Arg Glu Pro Ser Asn
130 135 140

Pro Glu Xaa Leu Lys Gly Leu Gly Met Leu

145 150

<210> 1764
<211> 80
<212> PRT
<213> Homo sapiens

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<400> 1764
Ala Xaa Xaa Phe Pro Tyr Thr Val Asp Asn Ala Arg Ile Val Leu Xaa
1 5 10 15

Ile Asp Asn Ala Arg Leu Ala Ala Asp Asp Phe Arg Gly Xaa Tyr Glu
20 25 30

Thr Asp Leu Ala Met Arg Xaa Ser Val Xaa Asn Asp Ile His Gly Leu
35 40 45

Arg Lys Val Ile Asp Asp Thr Asn Ile Thr Arg Leu Xaa Leu Glu Thr
50 55 60

Glu Ile Glu Xaa Leu Xaa Glu Asp Leu Leu Phe Met Xaa Xaa Asn His
65 70 75 80

<210> 1765
<211> 64
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (26)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1765
Phe Gly Thr Arg Arg Asn Val Lys Leu Ile Ala Leu Ser Ile Asp Ser
1 5 10 15

Val Glu Asp His Leu Ala Trp Ser Lys Xaa Ile Asn Ala Tyr Asn Cys
20 25 30

Glu Glu Pro Thr Glu Lys Leu Pro Phe Pro Ile Ile Asp Asp Arg Asn
35 40 45

Arg Glu Leu Ala Ile Leu Leu Gly Met Leu Asp Pro Ala Arg Glu Gly
50 55 60

<210> 1766
<211> 94
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (89)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1766
Ile Arg His Glu Gln Ala Ala Ser Ser Pro Glu Pro Thr Gly Cys Leu
1 5 10 15

Leu Ser Gln Arg Arg Pro Leu Ile Thr Val Ala Met Pro Gly Gly Leu
20 25 30

Leu Leu Gly Asp Val Ala Pro Asn Phe Glu Ala Asn Thr Thr Val Gly
35 40 45

Arg Ile Arg Phe His Asp Phe Leu Gly Asp Ser Trp Gly Ile Leu Phe
50 55 60

Ser His Pro Arg Asp Phe Thr Pro Val Cys Thr Thr Glu Leu Gly Arg
65 70 75 80

Ala Ala Lys Trp His Gln Asn Leu Xaa Arg Gly Met Leu Ser
85 90

<210> 1767
<211> 51
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (6)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1767
Gly Val Ser Cys Thr Xaa Pro Val Leu Gln Val Gln Arg Val Gln Met
1   5   10   15

His Leu Leu Gln Glu Glu Leu Leu Leu Leu Leu Pro Cys Gly Cys Ala
            20   25   30

Lys Cys Ala Gln Gly Cys Ile Cys Lys Gly Ala Ser Glu Lys Cys Ser
        35   40   45

Cys Cys Ala
    50

<210> 1768
<211> 143
<212> PRT
<213> Homo sapiens

<220>
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<223> Xaa equals any of the naturally occurring L-amino acids

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<221> SITE
<222> (8)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1768
Gln Arg Thr Xaa Gly Asn Xaa Xaa Ala Cys Arg Tyr Arg Thr Gly Ile
1   5   10   15

Pro Gly Ser Thr His Ala Ser Gly Arg Gly His Gly Leu Ile Ala Val
            20   25   30

Cys Ala Leu His Ser Val Pro His Ser Pro Pro Thr Thr Cys Leu Ala
        35   40   45

Glu Arg Thr Pro Cys Arg Arg Pro Ala Glu Met Leu Arg Leu Pro Thr
    50   55   60

Val Phe Arg Gln Met Arg Pro Val Ser Arg Val Leu Ala Pro His Leu
65   70   75   80

Thr Arg Ala Tyr Ala Lys Asp Val Lys Phe Gly Ala Asp Ala Arg Ala
85 90 95

Leu Met Leu Gln Gly Val Asp Leu Leu Ala Asp Ala Val Ala Val Thr
100 105 110

Met Gly Pro Lys Gly Arg Thr Val Ile Ile Glu Gln Ser Trp Gly Ser
115 120 125

Pro Lys Val Thr Arg Asp Gly Val Thr Val Ala Lys Ser Leu Thr
130 135 140

<210> 1769
<211> 168
<212> PRT
<213> Homo sapiens

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<222> (163)
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<400> 1769
Asn Ser Ala Arg Ala Cys Xaa Ala Glu Arg Thr Xaa Cys Arg Arg Pro
1 5 10 15

Ala Glu Met Leu Arg Leu Pro Thr Val Phe Arg Gln Met Arg Pro Val
20 25 30

Ser Arg Val Leu Ala Pro His Leu Xaa Arg Ala Tyr Ala Lys Xaa Val
35 40 45

Lys Phe Gly Ala Asp Ala Arg Ala Leu Met Leu Gln Gly Val Asp Leu
50 55 60

Leu Ala Asp Ala Val Ala Val Thr Met Gly Pro Lys Gly Arg Thr Val
65 70 75 80

Ile Ile Glu Gln Ser Trp Gly Ser Pro Lys Val Thr Lys Asp Gly Val
85 90 95

Thr Val Ala Lys Ser Ile Asp Leu Lys Asp Lys Tyr Lys Asn Ile Gly
100 105 110

Ala Lys Xaa Val Gln Asp Val Ala Xaa Asn Thr Ile Glu Glu Leu Gly
115 120 125

Met Ala Xaa Pro Cys Tyr Cys Tyr Gly Thr Ser Ile Ala Lys Glu Gly
130 135 140

Phe Glu Lys Val Ser Lys Val Leu Ile His Gly Asn Gln Glu Arg Cys
145 150 155 160

Asp Val Xaa Val Asp Ala Val Leu
165

<210> 1770
<211> 148
<212> PRT
<213> Homo sapiens

<400> 1770

Gly Ala Glu Ala Phe Gly Ala Ala Lys Met Pro Asp Tyr Leu Gly Ala
1   5   10   15

Asp Gln Arg Lys Thr Lys Glu Asp Glu Lys Asp Asp Lys Pro Ile Arg
            20   25   30

Ala Leu Asp Glu Gly Asp Ile Ala Leu Leu Lys Thr Tyr Gly Gln Ser
        35   40   45

Thr Tyr Ser Arg Gln Ile Lys Gln Val Glu Asp Asp Ile Gln Gln Leu
    50   55   60

Leu Lys Lys Ile Asn Glu Leu Thr Gly Ile Lys Glu Ser Asp Thr Gly
65   70   75   80

Leu Ala Pro Pro Ala Leu Trp Asp Leu Ala Ala Asp Lys Gln Thr Leu
                85   90   95

Gln Ser Glu Gln Pro Leu Gln Val Ala Arg Cys Thr Lys Ile Ile Asn
            100   105   110

Ala Asp Ser Glu Asp Pro Lys Tyr Ile Ile Asn Val Lys Gln Phe Ala
        115   120   125

Lys Phe Val Val Asp Leu Ser Asp Gln Val Ala Pro Thr Asp Ile Glu
    130   135   140

Glu Gly Met Arg
145

<210> 1771
<211> 45
<212> PRT
<213> Homo sapiens

<220>
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<222> (38)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1771
Gly Arg Met Ala Glu Ser Ser Asp Lys Leu Tyr Arg Val Glu Tyr Ala
1   5   10   15

Lys Ser Gly Arg Ala Ser Cys Lys Lys Cys Ser Glu Thr Ser Pro Arg
            20   25   30

Thr Arg Ser Gly Trp Xaa Ser Trp Cys Ile Ala His Val
        35   40   45

<210> 1772
<211> 81
<212> PRT
<213> Homo sapiens

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<222> (5)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1772
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Leu Glu Ala Glu Xaa Ser Leu Ser Arg Gly Asp Trp Tyr Lys Thr Lys
 1               5                  10                  15

Glu Ile Leu Leu Lys Gly Pro Asp Trp Ile Leu Gly Glu Ile Lys Thr
            20                  25                  30

Ser Gly Leu Arg Gly Arg Gly Gly Ala Gly Phe Pro Asn Gly Leu Lys
        35                  40                  45

Trp Xaa Phe Met Ile Arg Pro Gln Met Ala Gly Pro Ser Ile Trp Trp
    50                  55                  60

Xaa Asn Ala Asn Glu Gly Gly Ala Gly Xaa Leu Xaa Glu Pro Gly Gly
65                  70                  75                  80

Phe
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<210> 1773
<211> 145
<212> PRT
<213> Homo sapiens

<220>
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<223> Xaa equals any of the naturally occurring L-amino acids

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<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1773

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Cys Glu Lys Thr Thr Glu Gly Ala Leu Pro Ser Ser Thr Ala Ala Ala
1               5                   10                  15

Ser Phe Phe Cys Arg Ser Trp Cys Cys Leu Cys Ala Arg Leu Val Arg
            20                  25                  30

Thr Trp Tyr Leu Phe Cys Glu Ala Ala Ala Glu Glu Thr Pro Ala Leu
        35                  40                  45

Ala Met Ala Asp Glu Lys Pro Lys Glu Gly Val Lys Thr Glu Asn Asn
    50                  55                  60

Asp His Ile Asn Leu Lys Val Ala Gly Gln Asp Gly Ser Val Val Gln
65                  70                  75                  80

Phe Lys Ile Lys Arg His Thr Pro Leu Ser Lys Leu Met Lys Ala Tyr
                85                  90                  95

Cys Glu Arg Gln Gly Leu Ser Met Lys Gln Ile Arg Phe Arg Phe Xaa
            100                 105                 110

Gly Gln Pro Ile Asn Xaa Thr Asp Thr Pro Ala Gln Leu Gly Asn Gly
        115                 120                 125

Arg Met Lys Ile Pro Met Met Cys Ser Lys Gln Gln Thr Gly Gly Val
    130                 135                 140

Tyr
145
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<210> 1774
<211> 122
<212> PRT
<213> Homo sapiens

<220>
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<222> (47)
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<223> Xaa equals any of the naturally occurring L-amino acids

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<221> SITE
<222> (115)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1774
His Ala Ser Ala His Ala Ser Ala Pro Leu Ala Met Ala Ser Leu Thr
1 5 10 15

Val Lys Ala Tyr Leu Leu Gly Lys Glu Asp Ala Ala Arg Glu Ile Arg
20 25 30

Arg Phe Ser Phe Cys Cys Ser Pro Glu Pro Glu Ala Gly Ser Xaa Ala
35 40 45

Ala Ala Gly Pro Gly Pro Leu Arg Ala Ala Ala Glu Pro Gly Gly Arg
50 55 60

Pro Val Pro Arg Ala Ala Ala Trp Arg Leu Ser Arg Arg Thr Thr Ala
65 70 75 80

Ile Glu Asp Gly Asp Leu Leu Leu Phe Ser Ile Asp Glu Asp Leu Thr
85 90 95

Trp Ala Cys Ser Thr Leu Lys Met Asn Leu Xaa Asp Phe Xaa Phe Xaa
100 105 110

Glu Lys Xaa Phe Pro Ala Gly Thr Arg Gln
        115   120

<210> 1775
<211> 105
<212> PRT
<213> Homo sapiens

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<400> 1775
Pro Arg Val Arg Pro Arg Val Arg Pro Arg Val Arg Pro Arg Val Arg
1   5   10   15

Asn Glu Leu Arg Val Ala Pro Glu Glu His Pro Thr Leu Leu Thr Glu

20 25 30

Ala Pro Leu Asn Pro Lys Ala Asn Arg Glu Lys Met Thr Gln Ile Met
35 40 45

Phe Glu Thr Phe Asn Val Gln Ala Met Xaa Leu Ala Ile Gln Ala Val
50 55 60

Leu Ser Leu Tyr Ala Ser Gly Xaa Thr Met Glu Ser Cys Trp Thr Leu
65 70 75 80

Glu Met Val Ser Pro Xaa Met Ser Gln Xaa Met Arg Ala Met Leu Xaa
85 90 95

Pro Met Gln Xaa Met Gly Leu Xaa Leu
100 105

<210> 1776
<211> 106
<212> PRT
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<220>
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<400> 1776
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Pro Leu Arg Gly Asn Val Val Pro Ser Pro Leu Pro Thr Arg Xaa Thr
 1               5                  10                  15

Arg Thr Phe Ser Ala Thr Val Arg Ala Ser Xaa Gly Pro Val Tyr Lys
            20                  25                  30

Gly Val Cys Lys Cys Phe Xaa Arg Ser Lys Gly His Gly Phe Xaa Xaa
        35                  40                  45

Pro Ala Asp Gly Gly Pro Asp Ile Phe Leu His Ile Phe Glu Xaa Xaa
    50                  55                  60

Arg Gly Ser Met Xaa Xaa Trp Lys Ala Thr Arg Ser Xaa Ile Lys Cys
65                  70                  75                  80

Ala Ser Ile Pro Pro Lys Xaa Glu Lys Leu Gln Ala Val Gly Val Arg
                85                  90                  95
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His Gln Ser Pro Gly Thr Arg Xaa Gln Val
100 105

<210> 1777
<211> 90
<212> PRT
<213> Homo sapiens

<400> 1777
Gly Leu Asp Met Phe Ser Phe Val Asp Leu Arg Leu Leu Leu Leu Leu
1 5 10 15

Ala Ala Thr Ala Leu Leu Thr His Gly Gln Glu Glu Gly Gln Val Glu
20 25 30

Gly Gln Asp Glu Asp Ile Pro Pro Ile Thr Cys Val Gln Asn Gly Leu
35 40 45

Arg Tyr His Asp Arg Asp Val Trp Lys Pro Glu Pro Cys Arg Ile Cys
50 55 60

Val Cys Asp Asn Gly Lys Val Leu Cys Asp Asp Val Ile Cys Asp Glu
65 70 75 80

Thr Lys Asn Cys Pro Gly Ala Glu Val Pro
85 90

<210> 1778
<211> 64
<212> PRT
<213> Homo sapiens

<220>
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<223> Xaa equals any of the naturally occurring L-amino acids

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<222> (62)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1778
Ile Ile Xaa Asn Thr Glu Asn Leu Val Arg Glu Leu Leu Thr Val Pro
1 5 10 15

Asp Asn Tyr Xaa Val Ile Xaa Leu Ala Xaa Lys Trp Val Arg Pro Ile
20 25 30

Xaa Cys Cys Pro Leu Xaa Leu Ile Gly Leu Lys Ala Xaa Lys Cys Ala
35 40 45

Asp Tyr Val Val Thr Gly Thr Trp Ser Ala Lys Gly Ala Xaa Lys Thr
50 55 60

<210> 1779
<211> 60
<212> PRT
<213> Homo sapiens

<220>
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<222> (60)
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<400> 1779
Trp Leu Ser Ser Thr Ala Met Tyr Ser Ala Ala Gly Arg Asp Leu Gly
1   5   10   15

Met Glu Pro His Arg Ala Ala Gly Pro Leu Pro Ala Ala Asn Phe Arg
            20   25   30

Pro Asp Val Phe Asn Gly Gly Asp Tyr Thr Gly Gln Leu Leu Glu Lys
        35   40   45

Ile Leu Pro Ile Val Ala Ser Glu Tyr Ser Ile Xaa
    50   55   60

<210> 1780
<211> 60
<212> PRT
<213> Homo sapiens

<220>
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<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1780
Thr Leu Xaa Leu His Lys Ile Gln Lys Leu Arg Trp Ala Trp Cys Cys
1   5   10   15

Xaa Pro Ile Val Pro Leu Leu Val Gly Leu Arg Gln Glu Asp His Leu
            20   25   30

Ser Pro Gly Gly Arg Gly Tyr Xaa Ala Pro Arg Val His Tyr Cys Thr

35 40 45

Pro Ala Arg Ala Arg Arg Ala Arg Pro Cys Xaa Lys
50 55 60

<210> 1781
<211> 67
<212> PRT
<213> Homo sapiens

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<222> (57)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1781
Gly Cys Arg Val Asn Gln Ala Ala Val Xaa Trp His Glu Gln Val Xaa
1   5   10   15

Trp Leu Ser Glu Xaa Arg Xaa Gly Glu Thr Val Tyr Tyr Arg Leu Leu
            20   25   30

Pro Xaa Lys Asn Val Xaa Xaa Arg Xaa Ala Arg Gly Leu Val Phe Lys
        35   40   45

Glu Cys Arg Gln Ser Ala Ser Met Xaa Arg Val Leu Ala Val Tyr Gly
    50   55   60

Val Lys Arg
65

<210> 1782
<211> 152
<212> PRT
<213> Homo sapiens

<220>
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<400> 1782

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Arg Pro Thr Arg Pro Leu Thr Ser Thr Xaa Ala Val Gly Lys Asn Lys
1               5                   10                  15

Arg Leu Thr Lys Gly Gly Lys Lys Gly Ala Lys Lys Lys Val Val Asp
            20                  25                  30

Pro Phe Ser Lys Lys Asp Trp Tyr Asp Val Lys Ala Pro Ala Met Phe
        35                  40                  45

Asn Ile Arg Asn Ile Gly Lys Thr Leu Val Thr Arg Thr Gln Gly Thr
    50                  55                  60

Lys Ile Ala Ser Asp Gly Leu Lys Gly Arg Val Phe Glu Val Ser Leu
65                  70                  75                  80

Ala Asp Leu Gln Asn Asp Glu Val Ala Phe Arg Lys Phe Lys Leu Ile
                85                  90                  95

Thr Glu Asp Val Gln Gly Lys Asn Cys Leu Thr Asn Phe His Gly Met
            100                 105                 110

Asp Leu Thr Arg Asp Lys Met Cys Ser Met Val Lys Lys Trp Xaa Thr
        115                 120                 125

Met Ile Glu Ala His Val Asp Val Lys Thr Thr Asp Gly Tyr Leu Leu
    130                 135                 140

Arg Cys Ser Xaa Xaa Xaa Xaa Leu
145                 150
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<210> 1783
<211> 127
<212> PRT
<213> Homo sapiens

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<222> (82)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1783
His Arg Val Arg Gln Arg Xaa Pro Thr Leu Ala Arg Ala Met Ala Ser
1 5 10 15

Val Ser Glu Leu Ala Cys Ile Tyr Ser Ala Leu Ile Leu His Asp Asp
20 25 30

Glu Val Thr Val Thr Glu Asp Lys Ile Asn Ala Leu Ile Lys Ala Ala
35 40 45

Gly Val Asn Val Glu Pro Phe Trp Pro Gly Leu Phe Ala Lys Ala Leu
50 55 60

Ala Asn Val Asn Ile Gly Ser Leu Ile Cys Asn Val Gly Ala Gly Gly
65 70 75 80

Pro Xaa Pro Ala Ala Gly Ala Ala Pro Ala Gly Gly Pro Ala Pro Ser
85 90 95

Thr Ala Ala Ala Pro Ala Glu Glu Lys Lys Val Glu Ala Lys Lys Glu
100 105 110

Glu Ser Glu Glu Ser Tyr Asp Asp Met Gly Phe Gly Leu Phe Asp
115 120 125

<210> 1784
<211> 101
<212> PRT
<213> Homo sapiens

<220>
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<222> (9)
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<220>
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<222> (68)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1784
Gly Ser Ala Ala Gly Ser Thr Ala Xaa Ser Leu Leu Ser Thr Gly Xaa
1 5 10 15

Pro Arg Pro Thr Arg Pro Asp Lys Ala Arg Arg Leu Gly Tyr Lys Ala
20 25 30

Lys Gln Gly Tyr Val Ile Tyr Arg Ile Arg Val Arg Arg Gly Gly Arg
35 40 45

Lys Arg Pro Val Pro Lys Gly Ala Thr Tyr Gly Lys Pro Val His His
50 55 60

Gly Val Xaa Xaa Leu Lys Phe Ala Arg Ser Leu Gln Ser Val Ala Glu
65 70 75 80

Glu Arg Ala Gly Arg His Cys Gly Ala Leu Arg Val Leu Asn Ser Tyr
85 90 95

Trp Val Gly Glu Asp
100

<210> 1785
<211> 123
<212> PRT
<213> Homo sapiens

<400> 1785
Ala Lys Met Gly Ala Tyr Lys Tyr Ile Gln Glu Leu Trp Arg Lys Lys
1 5 10 15

Gln Ser Asp Val Met Arg Phe Leu Leu Arg Val Arg Cys Trp Gln Tyr
20 25 30

Arg Gln Leu Ser Ala Leu His Arg Ala Pro Arg Pro Thr Arg Pro Asp
35 40 45

Lys Ala Arg Arg Leu Gly Tyr Lys Ala Lys Gln Gly Tyr Val Ile Tyr
50 55 60

Arg Ile Arg Val Arg Arg Gly Gly Arg Lys Arg Pro Val Pro Lys Gly
65 70 75 80

```
Ala Ile Thr Ala Ser Leu Ser Ile Met Val Leu Thr Ala Lys Val Cys
                85                  90                  95

Ser Lys Pro Ser Val Arg Cys Arg Gly Ala Ser Trp Thr Pro Leu Trp
            100                 105                 110

Gly Ser Glu Ser Pro Glu Phe Leu Leu Gly Trp
        115                 120
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<210> 1786
<211> 137
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (2)
<223> Xaa equals any of the naturally occurring L-amino acids

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<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<220>
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<222> (38)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (57)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1786
Ile Xaa Ile Lys Xaa Thr Xaa Thr Xaa Gly Xaa Lys Leu Xaa Leu His
1 5 10 15

Arg Gly Gly Gly Arg Ser Ser Thr Ser Gly Ser Pro Gly Ser Ala Gly
20 25 30

Ile Arg His Glu Arg Xaa Lys Arg Asp Asp Glu Gly Thr Ser Ser Phe
35 40 45

Gly Lys Arg Arg Asn Lys Thr His Xaa Leu Cys Arg Arg Cys Gly Ser
50 55 60

Lys Ala Tyr His Leu Gln Lys Ser Thr Cys Gly Lys Cys Gly Tyr Pro
65 70 75 80

Ala Lys Arg Lys Arg Lys Tyr Asn Trp Ser Ala Lys Ala Lys Arg Arg
85 90 95

Asn Thr Thr Gly Thr Gly Arg Met Arg His Leu Lys Ile Val Tyr Arg
100 105 110

Arg Phe Arg His Gly Phe Arg Glu Gly Thr Thr Pro Lys Pro Lys Arg
115 120 125

Ala Ala Val Ala Ala Ser Ser Ser Ser
130 135

<210> 1787
<211> 128
<212> PRT
<213> Homo sapiens

<220>
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<222> (2)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (7)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1787

Leu Xaa Leu Thr Lys Gly Xaa Lys Ser Trp Gly Ser Thr Ala Val Thr
1 5 10 15

Thr Ala Leu Glu Leu Val Asp Pro Pro Gly Cys Arg Asn Ser Ala Arg
20 25 30

Gly Arg Gly Asp Met Ala Lys Arg Thr Lys Lys Val Gly Ile Val Gly
35 40 45

Lys Tyr Gly Thr Arg Tyr Gly Ala Ser Leu Arg Lys Met Val Lys Lys
50 55 60

Ile Glu Ile Ser Gln His Ala Lys Tyr Thr Cys Ser Phe Cys Gly Lys
65 70 75 80

Thr Lys Met Lys Arg Arg Ala Val Gly Ile Trp His Cys Gly Ser Cys
85 90 95

Met Lys Thr Val Ala Gly Gly Ala Trp Thr Tyr Asn Thr Thr Ser Ala
100 105 110

Val Thr Val Lys Ser Ala Ile Arg Arg Leu Lys Glu Leu Lys Asp Gln
115 120 125

<210> 1788
<211> 95
<212> PRT
<213> Homo sapiens

<400> 1788
Arg Gly Asp Met Ala Lys Arg Thr Lys Lys Val Gly Ile Val Gly Lys
1 5 10 15

Tyr Gly Thr Arg Tyr Gly Ala Ser Leu Arg Lys Met Val Lys Lys Ile
20 25 30

Glu Ile Ser Gln His Ala Lys Tyr Thr Cys Ser Phe Cys Gly Lys Thr
35 40 45

Lys Met Lys Arg Arg Ala Val Gly Ile Trp His Cys Gly Ser Cys Met
50 55 60

Lys Thr Val Ala Gly Gly Ala Trp Thr Tyr Asn Thr Thr Ser Ala Val
65 70 75 80

Thr Val Lys Ser Ala Ile Arg Arg Leu Lys Glu Leu Lys Asp Gln

85 90 95

<210> 1789
<211> 113
<212> PRT
<213> Homo sapiens

<220>
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<222> (72)
<223> Xaa equals any of the naturally occurring L-amino acids

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<222> (93)
<223> Xaa equals any of the naturally occurring L-amino acids

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<222> (104)
<223> Xaa equals any of the naturally occurring L-amino acids

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<222> (105)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<222> (111)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1789
Gln Ser Leu Gly Arg Gly Asp Met Ala Lys Arg Thr Lys Lys Val Gly
1 5 10 15

Ile Val Gly Lys Tyr Gly Thr Arg Tyr Gly Ala Ser Leu Arg Lys Met
20 25 30

Val Lys Lys Ile Glu Ile Ser Gln His Ala Lys Tyr Thr Cys Ser Phe
35 40 45

Cys Gly Lys Thr Lys Met Lys Arg Arg Ala Val Gly Ile Trp His Cys
50 55 60

Gly Ser Cys Met Lys Thr Val Xaa Gly Gly Xaa Trp Thr Tyr Asn Thr
65 70 75 80

Thr Ser Ala Val Thr Val Lys Val Arg His Gln Lys Xaa Glu Gly Val
85 90 95

Glu Arg Pro Leu Asp Val Pro Xaa Xaa Phe Gly Thr Ser Leu Xaa Tyr
100 105 110

Asn

<210> 1790
<211> 24
<212> PRT
<213> Homo sapiens

<400> 1790
Ile Pro Cys Leu Lys Pro Lys Asn Phe Gly Ile Gly Gln Asp Ile Gln
1 5 10 15

Pro Lys Arg Asp Ser Pro Ala Leu
20

<210> 1791
<211> 70
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (32)
<223> Xaa equals any of the naturally occurring L-amino acids

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<223> Xaa equals any of the naturally occurring L-amino acids

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<221> SITE

<222> (49)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1791
Arg Arg Cys Ala Leu Arg Ala Val Asp Phe Ala Glu Arg Asn Gly Tyr
1   5   10   15

Ile Lys Gly Ile Val Lys Asp Ile Ile His Asp Pro Gly Arg Gly Xaa
            20   25   30

Pro Leu Ala Lys Val Val Phe Arg Asp Pro Xaa Arg Leu Arg Ser Xaa
        35   40   45

Xaa Glu Leu Phe Ile Ala Ala Glu Gly Ile His Thr Gly Gln Phe Val
    50   55   60

Tyr Cys Arg Lys Lys Ala
65   70

<210> 1792
<211> 110
<212> PRT
<213> Homo sapiens

<220>
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<222> (4)
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<220>
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<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1792
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Gly Arg Val Xaa Arg Pro Thr Arg Pro Xaa Glu Xaa Arg Gly Gly Gly
 1               5                  10                  15

Gly Leu Gly Ala Phe Lys Ile Gln Leu His Xaa Xaa Ala Thr Gly Met
            20                  25                  30

Ala Glu Glu Gly Ile Ala Ala Gly Gly Val Met Asp Val Asn Thr Ala
        35                  40                  45

Leu Gln Glu Val Leu Lys Thr Ala Leu Xaa His Asp Gly Leu Ala Arg
```

50 55 60

Gly Ile Arg Glu Ala Ala Lys Ala Leu Asp Lys Arg Gln Ala His Leu
65 70 75 80

Cys Xaa Leu Ala Ser Asn Xaa Asp Glu Pro Met Tyr Xaa Lys Xaa Xaa
85 90 95

Glu Ala Leu Xaa Ala Glu His Gln Xaa Asn Leu Ile Lys Gly
100 105 110

<210> 1793
<211> 92
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (42)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (43)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1793
Leu Val Pro Asn Ser Ala Arg Ala Ala Ile Met Gly Arg Met His Ala
1 5 10 15

Pro Gly Lys Gly Leu Ser Gln Ser Ala Leu Pro Tyr Arg Arg Ser Val
20 25 30

Pro Thr Trp Leu Lys Leu Thr Ser Asp Xaa Xaa Lys Glu Gln Ile Tyr
35 40 45

Lys Leu Ala Lys Lys Gly Leu Thr Pro Ser Gln Ile Gly Val Ile Leu
50 55 60

Arg Asp Ser His Gly Val Ala Gln Val Arg Phe Val Thr Gly Asn Lys
65 70 75 80

Ile Leu Arg Ile Leu Lys Ser Lys Gly Leu Ala Pro
85 90

<210> 1794
<211> 105

<212> PRT
<213> Homo sapiens

<400> 1794
Ile Ala Ile Val Asn Asp Thr Val Thr Ile Arg Thr Arg Lys Phe Met
1 5 10 15

Thr Asn Arg Leu Leu Gln Arg Lys Gln Met Val Ile Asp Val Leu His
20 25 30

Pro Gly Lys Ala Thr Val Pro Lys Thr Glu Ile Arg Glu Lys Leu Ala
35 40 45

Lys Met Tyr Lys Thr Thr Pro Asp Val Ile Phe Val Phe Gly Phe Arg
50 55 60

Thr His Phe Gly Gly Gly Lys Thr Thr Gly Phe Gly Met Ile Tyr Asp
65 70 75 80

Ser Leu Asp Tyr Ala Lys Lys Asn Glu Pro Lys His Arg Leu Ala Arg
85 90 95

His Gly Leu Tyr Glu Lys Lys Lys Thr
100 105

<210> 1795
<211> 92
<212> PRT
<213> Homo sapiens

<400> 1795
Val Asp Pro Arg Val Arg Tyr Asp Thr Lys Gly Arg Phe Ala Val His
1 5 10 15

Arg Ile Thr Pro Glu Glu Ala Lys Tyr Lys Leu Cys Lys Val Arg Lys
20 25 30

Ile Phe Val Gly Thr Lys Gly Ile Pro His Leu Val Thr His Asp Ala
35 40 45

Arg Thr Ile Arg Tyr Pro Asp Pro Leu Ile Lys Val Asn Asp Thr Ile
50 55 60

Gln Ile Asp Leu Glu Thr Gly Lys Ile Thr Asp Phe Ile Lys Phe Asp
65 70 75 80

Thr Gly Asn Leu Cys Met Val Thr Gly Gly Ala Asn
85 90

<210> 1796
<211> 130
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (90)
<223> Xaa equals any of the naturally occurring L-amino acids

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<222> (101)
<223> Xaa equals any of the naturally occurring L-amino acids

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<221> SITE
<222> (113)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1796
Gly Ile Phe Arg Asp Asn Trp His Lys Arg Arg Lys Thr Gly Gly Lys
1   5   10   15

Arg Lys Pro Tyr His Lys Lys Arg Lys Tyr Glu Leu Gly Arg Pro Ala
            20   25   30

Ala Asn Thr Lys Ile Gly Pro Arg Arg Ile His Thr Val Arg Val Arg
        35   40   45

Gly Gly Asn Lys Lys Tyr Arg Ala Leu Arg Leu Asp Val Gly Asn Phe
    50   55   60

Ser Trp Gly Ser Glu Cys Cys Thr Arg Lys Thr Arg Ile Ile Asp Val
65   70   75   80

Val Tyr Asn Ala Ser Asn Asn Glu Leu Xaa Arg Thr Lys Thr Leu Val
                85   90   95

Lys Asn Cys Ile Xaa Leu Ile Asp Ser Thr Pro Tyr Arg Gln Trp Tyr
            100   105   110

Xaa Val Pro Leu Cys Ala Ala Pro Gly Pro Gln Glu Gly Ser Gln Ala
        115   120   125

Asp Ser
    130

<210> 1797
<211> 106
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (47)
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<220>
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<222> (87)
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<222> (92)
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<222> (98)
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<223> Xaa equals any of the naturally occurring L-amino acids

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<222> (103)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (106)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1797
Pro Arg Ala Gly Gly Cys Gly Gly Ser Gly Arg Val Thr Ala Cys Leu
1   5   10   15

Cys Ala Cys Ala Thr Leu Val Trp Pro Pro Arg Phe Gln Glu Val Leu
            20   25   30

Leu Val Leu Ser Gly Leu Val His Ala Arg Gly Cys Thr Tyr Xaa Gln
        35   40   45

Leu Trp Ser Arg Ser His Pro Phe Cys Cys Xaa Arg Gly Pro Leu Ala
    50   55   60

Met Ala Gly Ile Leu Phe Glu Asp Ile Phe Asp Val Lys Asp Ile Xaa
65   70   75   80

Pro Glu Gly Lys Lys Phe Xaa Arg Val Ser Arg Xaa His Cys Glu Ser
                85   90   95

Glu Xaa Xaa Arg Trp Xaa Xaa Thr Lys Xaa
            100   105

<210> 1798
<211> 140
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (2)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (3)
<223> Xaa equals any of the naturally occurring L-amino acids

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<222> (6)
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<220>
<221> SITE

<222> (7)
<223> Xaa equals any of the naturally occurring L-amino acids

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<222> (13)
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<221> SITE
<222> (14)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<222> (15)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (16)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1798

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Lys Xaa Xaa Glu Pro Xaa Xaa Arg Ile Glu Arg Ala Xaa Xaa Xaa Xaa
  1               5                  10                  15

Leu Lys Lys Ser Gly Lys Leu Lys Val Pro Glu Trp Val Asp Thr Val
             20                  25                  30

Lys Leu Ala Lys His Lys Glu Leu Ala Pro Tyr Asp Glu Asn Trp Phe
         35                  40                  45

Tyr Thr Arg Ala Ala Ser Thr Ala Arg His Leu Tyr Leu Arg Gly Gly
     50                  55                  60

Ala Gly Val Gly Ser Met Thr Lys Ile Tyr Gly Gly Arg Gln Arg Asn
 65                  70                  75                  80

Gly Val Met Pro Ser His Phe Ser Arg Gly Ser Lys Ser Val Ala Arg
                 85                  90                  95

Arg Val Leu Gln Ala Leu Glu Gly Leu Lys Met Val Glu Lys Asp Gln
            100                 105                 110

Asp Gly Gly Arg Lys Leu Thr Pro Gln Gly Gln Arg Asp Leu Asp Arg
        115                 120                 125

Ile Ala Gly Gln Val Ala Ala Ser Asn Lys Lys His
    130                 135                 140
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<210> 1799
<211> 126
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (10)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (126)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1799
Val Asp Pro Arg Val Arg Lys Thr Val Xaa Glu Leu Asp Lys Gly Met
1 5 10 15

Gln Glu Arg Thr Gly Ala Ala Thr Ala Arg Arg Glu Ser Leu Pro Gln
20 25 30

Ala Asn Asn Pro Glu Gln Leu Cys Lys Gln Arg Cys Ile Asn Glu Ala
35 40 45

Ser Trp Thr Met Lys Leu Val Leu Ser Cys Val Pro Glu Pro Thr Val
50 55 60

Val Met Ala Ala Arg Ala Leu Cys Met Leu Gly Leu Val Leu Ala Leu
65 70 75 80

Leu Ser Ser Ser Ser Ala Arg Glu Leu Arg Gly Ala Cys Leu Pro Asn
85 90 95

Gln Cys Ala Val Pro Ala Lys Asp Arg Val Glu Leu Arg Leu Thr Pro
100 105 110

Met Phe Thr Pro Lys Asp Cys Lys Asn Arg Gly Cys Cys Xaa
115 120 125

<210> 1800
<211> 140
<212> PRT
<213> Homo sapiens

<220>
<221> SITE

<222> (123)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (126)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (133)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1800

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Gly Tyr Leu His Ser Leu Asn Ile Val Tyr Arg Asp Leu Lys Pro Glu
1               5                   10                  15

Asn Ile Leu Leu Asp Ser Gln Gly His Ile Val Leu Thr Asp Phe Gly
            20                  25                  30

Leu Cys Lys Glu Asn Ile Glu His Asn Ser Thr Thr Ser Thr Phe Cys
        35                  40                  45

Gly Thr Pro Glu Tyr Leu Ala Pro Glu Val Leu His Lys Gln Pro Tyr
    50                  55                  60

Asp Arg Thr Val Asp Trp Trp Cys Leu Gly Ala Phe Leu Tyr Glu Met
65                  70                  75                  80

Leu Tyr Gly Leu Pro Pro Phe Tyr Ser Arg Asn Thr Ala Glu Met Tyr
                85                  90                  95

Asp Asn Ile Leu Asn Lys Pro Leu Gln Leu Lys Pro Asn Ile Thr Asn
            100                 105                 110

Ser Ala Arg His Leu Leu Glu Gly Leu Leu Xaa Lys Asp Xaa Thr Lys
        115                 120                 125

Arg Leu Gly Gly Xaa Gly Asp Phe Met Glu Ile Lys
    130                 135                 140
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<210> 1801
<211> 92
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (77)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (81)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (92)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1801
Ala Thr Met Pro Gln Tyr Gln Thr Trp Glu Glu Phe Ser Arg Ala Ala
1   5   10   15

Glu Lys Leu Tyr Leu Ala Asp Pro Met Lys Ala Arg Val Val Leu Lys
            20   25   30

Tyr Arg His Ser Asp Gly Asn Leu Cys Val Lys Val Thr Asp Asp Leu
        35   40   45

Val Cys Leu Val Tyr Lys Thr Asp Gln Ala Gln Asp Val Lys Lys Ile
    50   55   60

Glu Lys Phe His Ser Gln Leu Met Arg Leu Ile Val Xaa Gln Gly Ala
65   70   75   80

Xaa Asn Leu Pro Trp Glu Leu Ser Glu Trp Phe Xaa
                85   90

<210> 1802
<211> 176
<212> PRT
<213> Homo sapiens

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<400> 1802
Arg Gly Ala Xaa Arg Ser Arg Thr Ser Gly Ser Pro Gly Xaa Ala Gly
1 5 10 15

Ile Arg Xaa Arg Xaa Val Ser Gln Lys Thr Val Ile Ile Lys Glu Glu
20 25 30

Glu Glu Asp Thr Ala Glu Lys Pro Gly Lys Glu Glu Asp Val Val Thr
35 40 45

Pro Lys Pro Xaa Lys Arg Lys Arg Asp Gln Ala Glu Glu Glu Pro Asn
50 55 60

Arg Ile Pro Ser Arg Xaa Leu Arg Arg Thr Lys Leu Asn Gln Glu Ser
65 70 75 80

Thr Ala Pro Lys Val Leu Phe Thr Gly Val Val Asp Ala Arg Gly Xaa
85 90 95

Arg Ala Val Leu Ala Trp Gly Glu Ile Trp Leu Val His Gly Gln Ser
100 105 110

Phe Pro Xaa Val His Gly Ser His Pro Pro Asp Ile Gln Phe Leu Cys
115 120 125

Gly Pro Gly Ala Gly Xaa Ser Pro Phe Cys Ser Xaa Asp Gly Trp His
130 135 140

His Ser Arg Gln Ala Gly Phe Leu Leu Thr Pro Asp Glu Tyr Val Val
145 150 155 160

Asn Asp Xaa Ala Pro Xaa Glu Glu Phe Gly Phe Thr Phe Lys Thr His
165 170 175

<210> 1803
<211> 39
<212> PRT
<213> Homo sapiens

<400> 1803
Gly Ser Leu Ala Val Thr Lys Asn Asp Gly His Tyr Arg Gly Asp Pro
1 5 10 15

Asn Trp Phe Met Lys Tyr Val Ala Pro Arg Glu Leu Gly Ser Pro His
20 25 30

Gly Val Gly Gly Gly Leu Phe
35

<210> 1804
<211> 42
<212> PRT
<213> Homo sapiens

<400> 1804
Gly Ser Leu Leu Ser Pro Asp Met Ala Asn Lys Gly Pro Ser Tyr Gly
1 5 10 15

Met Ser Arg Glu Val Gln Ser Lys Ile Glu Lys Lys Tyr Asp Glu Glu
20 25 30

Leu Gly Gly Ala Ala Gly Gly Val Gly Pro
35 40

<210> 1805
<211> 165
<212> PRT
<213> Homo sapiens

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<400> 1805

Phe Gly Thr Arg Leu Asp Gln Ile Arg Gln Arg Glu Ser Asp Ile Thr
1 5 10 15

Lys Glu Arg Ile Gln Lys Ile Leu Ala Thr Gly Ala Asn Val Ile Leu
20 25 30

Thr Thr Gly Gly Ile Asp Asp Met Cys Leu Lys Tyr Phe Val Glu Ala
35 40 45

Gly Ala Met Ala Val Arg Arg Val Leu Lys Arg Asp Leu Lys Arg Ile
50 55 60

Ala Lys Ala Ser Gly Ala Thr Ile Leu Ser Thr Leu Ala Asn Leu Glu
65 70 75 80

Gly Glu Glu Thr Phe Glu Ala Ala Met Leu Gly Gln Ala Glu Glu Val
85 90 95

Val Gln Glu Arg Phe Cys Asp Asp Glu Leu Ile Leu Ile Xaa Ile Pro
100 105 110

Arg Xaa Asp Gly Xaa Ile Gly Phe Phe Arg Gly Ala Lys Phe Ser Arg
115 120 125

Xaa Xaa Gly Gly Gly Leu Xaa Lys Xaa Leu Phe Gly Xaa Xaa Phe Gly
130 135 140

Xaa Ile Gly Xaa Pro Gly Val Leu Lys Xaa Xaa Xaa Pro Lys Ile Xaa
145 150 155 160

Pro Gly Xaa Asp Leu
165

<210> 1806
<211> 91
<212> PRT
<213> Homo sapiens

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<400> 1806

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Ile Ala Gly Lys Leu Gln Asp Gly Leu Leu Xaa Ile Thr Xaa Xaa Ser
  1               5                  10                  15

Phe Xaa Ala Pro Trp Asn Ser Leu Ser Leu Ala Xaa Ala Gly Ala Ser
             20                  25                  30

Pro Arg Pro Thr Leu Leu Ala Val Arg Asn Ala Gln Cys Phe Pro Val
         35                  40                  45

Tyr Pro Ser Pro Val Lys Leu Gln Ser Gly Thr His Cys Leu Trp Thr
     50                  55                  60

Asp Gln Leu Leu Gln Gly Ser Glu Lys Gly Phe Gln Phe Pro Xaa Thr
 65                  70                  75                  80

Leu Xaa Gly Leu Thr Ser Gly Ser Xaa Gly Leu
                 85                  90
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<210> 1807
<211> 123
<212> PRT
<213> Homo sapiens

<220>
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<400> 1807
Ala Arg Pro Ser Arg Arg Arg Arg Arg Arg Arg Arg Pro Leu Gly Leu
1 5 10 15

Ala Met Ser Ser Ser Pro Val Lys Arg Gln Arg Met Glu Ser Ala Leu
20 25 30

Asp Gln Leu Lys Gln Phe Thr Thr Val Val Ala Asp Thr Gly Asp Phe
35 40 45

His Ala Ile Asp Glu Tyr Lys Pro Gln Asp Ala Thr Thr Asn Pro Ser
50 55 60

Leu Ile Leu Ala Ala Ala Gln Met Pro Ala Tyr Gln Glu Leu Val Glu
65 70 75 80

Glu Ala Ile Ala Tyr Gly Arg Lys Leu Gly Gly Ser Gln Glu Asp Gln
85 90 95

Ile Lys Asn Ala Ile Xaa Lys Leu Phe Val Leu Phe Gly Ala Glu Ile
100 105 110

Leu Lys Lys Ile Pro Gly Arg Val Ser Thr Glu
115 120

<210> 1808
<211> 131
<212> PRT
<213> Homo sapiens

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<223> Xaa equals any of the naturally occurring L-amino acids

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<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1808
Arg Leu Arg Gly Gly Cys Ser Val Leu Ser Val Gln Ala Ala Ala Gly
1 5 10 15

Leu Ser Gln Arg Arg Pro Pro Phe Thr Leu Arg Ala Arg Ser Pro Ala
20 25 30

Val Leu Pro Phe Arg Cys Pro Pro Cys His His Asp Gly Thr Gly His
35 40 45

Leu Leu Arg Gln Arg Leu Leu Gly Arg Xaa Ile Ala Ala Ala Ile Ser
50 55 60

Lys Thr Ala Val Ala Pro Ile Glu Arg Val Lys Leu Leu Leu Gln Val
65 70 75 80

Gln His Ala Ser Lys Gln Ile Ala Ala Asp Lys Gln Tyr Lys Gly Ile
85 90 95

Val Asp Cys Ile Val Arg Ile Pro Arg Ser Arg Arg Val Ser Phe Trp
100 105 110

Arg Xaa Thr Leu Gln Arg His Arg Tyr Phe Pro Xaa Lys Pro Gln Phe
115 120 125

Ala Ser Arg
130

<210> 1809
<211> 93
<212> PRT
<213> Homo sapiens

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<400> 1809
Asp Trp Ser Lys Val Val Leu Ala Tyr Glu Pro Val Trp Ala Ile Gly
1 5 10 15

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Thr Gly Lys Thr Ala Thr Pro Gln Gln Ala Gln Glu Val His Glu Lys
            20                  25                  30

Leu Arg Gly Trp Leu Lys Ser Asn Val Ser Asp Ala Val Ala Xaa Ser
        35                  40                  45

Thr Arg Ile Ile Tyr Gly Gly Ser Val Thr Gly Ala Thr Cys Lys Glu
    50                  55                  60

Leu Ala Ser Gln Pro Asp Val Asp Gly Phe Leu Val Gly Gly Ala Ser
65                  70                  75                  80

Leu Lys Pro Glu Phe Val Asp Ile Ile Asn Ala Lys Gln
                85                  90
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<210> 1810
<211> 150
<212> PRT
<213> Homo sapiens

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<400> 1810
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Ile Arg His Glu Gly Arg Gly Ile Xaa Ile Glu Arg Val Val Ser Ser
  1               5                  10                  15

Glu Gly Gly Arg Pro Ser Val Asp Leu Ser Phe Gln Pro Ser Lys Pro
             20                  25                  30

Leu Ser Lys Ser Ser Ser Ser Pro Glu Leu Gln Thr Leu Gln Asp Ile
         35                  40                  45

Leu Gly Asp Pro Gly Asp Lys Ala Asp Val Gly Arg Xaa Ser Pro Xaa
     50                  55                  60

Val Lys Ala Arg Ser Gln Ser Gly Xaa Leu Asp Gly Glu Ser Xaa Ala
 65                  70                  75                  80

Trp Ser Val Ser Gly Glu Asp Ser Xaa Xaa Gln Pro Glu Gly Pro Leu
                 85                  90                  95

Thr Ser Arg Xaa Pro Arg Phe Ala Gln Val Xaa Ser Gly Pro Val Gly
            100                 105                 110

Tyr Asn Ile Xaa Xaa Xaa Xaa Pro Ser Arg Xaa Gly Lys Xaa Leu Glu
        115                 120                 125

Arg Asp Ala Leu Arg Ala Glu His Ser Xaa Ile Gln Arg Ser Ser Arg
    130                 135                 140

Ile Thr Xaa Phe Val Ser
145                 150
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<210> 1811
<211> 189
<212> PRT
<213> Homo sapiens

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<400> 1811
Gly Arg Xaa Gln Pro Ser Leu Lys Gly Thr Lys Ala Gly Ala Pro Pro
1 5 10 15

Arg Cys Gly Arg Ser Arg Thr Ser Gly Ser Pro Gly Leu Gln Glu Phe
20 25 30

Gly Thr Ser Glu Asp Glu Ile Asn Arg Arg Thr Ala Ala Glu Asn Glu
35 40 45

Phe Val Val Leu Lys Lys Asp Val Asp Ala Ala Tyr Met Ser Lys Val
50 55 60

Glu Leu Glu Ala Lys Val Asp Ala Leu Asn Asp Glu Ile Asn Phe Leu
65 70 75 80

Arg Thr Leu Asn Glu Thr Glu Leu Thr Glu Leu Gln Ser Gln Ile Ser
85 90 95

Asp Thr Ser Val Val Leu Ser Met Asp Asn Ser Arg Ser Leu Asp Leu
100 105 110

Asp Gly Ile Ile Ala Glu Val Lys Ala Gln Tyr Glu Glu Met Ala Lys
115 120 125.

Cys Ser Arg Ala Glu Ala Glu Ala Trp Tyr Gln Thr Lys Phe Glu Thr
130 135 140

Leu Gln Ala Gln Ala Gly Lys His Gly Asp Asp Leu Arg Asn Thr Arg
145 150 155 160

Asn Xaa Ile Ser Glu Met Asn Arg Ala Xaa Gln Arg Leu Gln Ala Glu
165 170 175

Ile Xaa Asn Ile Lys Asn Gln Arg Ala Lys Leu Glu Ala
180 185

<210> 1812
<211> 42
<212> PRT
<213> Homo sapiens

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<400> 1812
Leu Leu Ala Ser Leu Ala Asn Leu Ala Leu Pro Xaa Xaa Ile Asn Leu
1 5 10 15

Leu Gly Glu Leu Ser Val Ala Ser Asn Xaa Val Leu Leu Ile Lys Tyr
20 25 30

His Ser Pro Thr Tyr Arg Asn Ser Thr Tyr
35 40

<210> 1813
<211> 121
<212> PRT
<213> Homo sapiens

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<400> 1813
Trp Pro Pro Val Leu Ala Phe Leu Gly Cys Val Trp Ser Leu Gly Pro
1 5 10 15

Cys Leu Trp Gly Lys Ser Asn Arg Thr Leu Ala Leu Pro Lys Met Lys
20 25 30

Gly Glu Glu Met Gly Leu Leu Phe Leu Ser Pro Glu Trp Glu Arg Ser
35 40 45

Ser Gly Gly Trp Ser Phe Ser Thr Glu Glu Gly Ser Leu Lys Ala Leu
50 55 60

Leu Thr Ser Cys Cys Thr Phe Cys Ile Ser Leu His Ala His Cys Leu
65 70 75 80

Phe Leu Phe Leu Ala Leu Ala Pro Val Pro Val Pro Ala Pro Ala Asn
85 90 95

Ala Lys Met Gln Met His Xaa Leu Ala Xaa Arg Val Xaa Ala Gly Leu
100 105 110

Ser Cys Glu Xaa Gly Gly Trp Ala Xaa
115 120

<210> 1814
<211> 28
<212> PRT
<213> Homo sapiens

<220>
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<400> 1814
Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu
1 5 10 15

Xaa Xaa Pro Xaa Ser Ala Pro His Xaa Ser Ser Pro
20 25

<210> 1815
<211> 79
<212> PRT
<213> Homo sapiens

<220>
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<400> 1815
Ile Arg Xaa Ser Gly Asn Ala Asn Xaa Glu Asn Gly Glu Gln Glu Ala
1 5 10 15

Asp Asn Glu Val Asp Glu Xaa Glu Glu Glu Gly Gly Glu Glu Glu Glu

20 25 30

Glu Glu Glu Glu Gly Asp Gly Glu Glu Glu Asp Gly Asp Glu Asp Glu
35 40 45

Glu Ala Glu Xaa Ser Tyr Gly Pro Ser Gly Gln Leu Lys Met Met Arg
50 55 60

Met Thr Met Ser Ile Pro Arg Ser Arg Arg Pro Thr Arg Met Thr
65 70 75

<210> 1816
<211> 21
<212> PRT
<213> Homo sapiens

<400> 1816
Lys Leu Lys Pro Gly Ala Ile Asp Ile Val Pro Gln Gly Lys Met Lys
1 5 10 15

Asn Tyr Asn Gln Ala
20

<210> 1817
<211> 76
<212> PRT
<213> Homo sapiens

<400> 1817
Gly Lys Arg Gly Glu Ala Phe Pro Arg Ser Ser Gln Arg Trp Arg Phe
1 5 10 15

Gly Arg Gly Phe Gly Gly Cys Ser Arg Phe Ala Gly Thr Leu Val Ile
20 25 30

Ser Leu Ala Pro Leu Leu Pro Ala His Ser Pro Gly Leu Ala Gln Tyr
35 40 45

Ile Gly Thr Cys Gly Phe Tyr Phe Val Phe Asp Val Pro Asp Arg Asn
50 55 60

Arg Ala Arg Gly Thr Ala Lys Thr Thr Val Gly Ser
65 70 75

<210> 1818

<211> 76
<212> PRT
<213> Homo sapiens

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<220>
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<400> 1818
His Xaa Ile Xaa Xaa Tyr Xaa Xaa Pro Xaa Pro Lys Arg Xaa Xaa Asn
1 5 10 15

Thr Ala Cys Thr Ser Gln Arg Lys Ile Gln Asn Thr Thr Gln Xaa Ser
20 25 30

Xaa Thr Glu Glu Xaa Phe Pro Pro Thr Xaa Thr Pro Gly Leu His Gln
35 40 45

Pro Asn Xaa Thr Xaa Val Gly Phe Gly Phe Asp Ser Gln Xaa Val Leu
50 55 60

Cys Trp Leu Gln Arg Ile Asp Xaa Leu Asp Gly Xaa
65 70 75

<210> 1819
<211> 44
<212> PRT
<213> Homo sapiens

<400> 1819
Arg Met Phe Leu Leu Pro Lys Asn Val Lys Pro Thr Met Glu Asp Trp
1 5 10 15

Gly Arg Gly Gly Met Lys Tyr Lys Ile Met Ile Ile Tyr Thr Glu Leu
20 25 30

Gly Phe Phe Met Phe Cys Lys Lys Val Phe Ile Ser
35 40

<210> 1820
<211> 36
<212> PRT
<213> Homo sapiens

<220>
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<400> 1820
Xaa Ser Gly Ile Gly Arg Gly Ala Leu Arg Leu Lys Ser Phe Thr Ser
1 5 10 15

Glu Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Xaa
20 25 30

Lys Lys Xaa Xaa
35

<210> 1821
<211> 32
<212> PRT
<213> Homo sapiens

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<220>
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<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1821
Xaa Asn Thr Leu Xaa Gly Val Lys Met Lys Ile Xaa Thr Gln Asp Met
1 5 10 15

Asn Ile Phe Ser Cys Asn Leu Thr Ile Lys Ala Phe Ser His Thr Xaa
20 25 30

<210> 1822
<211> 39
<212> PRT
<213> Homo sapiens

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<223> Xaa equals any of the naturally occurring L-amino acids

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<400> 1822
Gly Xaa Gly Xaa Asn Pro Ala Ser Thr Lys Asn Thr Lys Lys Lys Lys
1 5 10 15

Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Xaa Lys
20 25 30

Lys Lys Xaa Lys Xaa Xaa Xaa
35

<210> 1823
<211> 118
<212> PRT
<213> Homo sapiens

<220>
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<400> 1823
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Xaa Asn Xaa Ser Ile Thr His Cys Thr His Gln Gly Lys Pro Gly Tyr
 1               5                  10                  15

Ala Xaa Gln Val Thr Gly Xaa Gly Asn Ser Arg Val Asp Pro Arg Val
            20                  25                  30

Arg Pro Arg Val Arg Pro Arg Val Arg Pro Arg Val Arg Ser Cys His
        35                  40                  45

Asp Leu Tyr Leu Met Val Phe Ile Ser Arg Val His Leu Arg Glu Ala
    50                  55                  60

Thr Leu Ser Ser Arg Ala Gln Met Glu Arg Arg Phe Cys Ala Val Gly
65                  70                  75                  80

Ser Xaa Leu Pro Arg Ser Gly Val Arg Glu Glu Asn Tyr Pro Ala Gly
                85                  90                  95

Phe Asn Leu Phe His Pro Val Cys Ser Pro Gly Val Ala Ser Ala Leu
            100                 105                 110

Arg Thr Ile Arg Phe Thr
        115
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<210> 1824
<211> 95
<212> PRT
<213> Homo sapiens

<220>
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<400> 1824
Asp Gln Gly Cys Ser Val Arg Ala Pro Pro Arg His Asp Phe Leu Gln
1 5 10 15

Leu Ser Pro Val Val Gly His Val Val Leu Arg Arg Pro Gly Arg Arg
20 25 30

Leu Arg Gly Val Leu Gly Arg Gly Ser Pro Phe Ala Arg Pro Ala Phe
35 40 45

Thr Gly Ala Pro Ala Ala Ala Ala Tyr Pro Xaa Pro Pro Pro Ala Leu
50 55 60

Cys Pro Arg Pro Pro Arg Gly Pro Thr Xaa Val Xaa Lys Xaa Gly Val
65 70 75 80

Leu Asn Arg Xaa Xaa Thr Gly Cys Trp Ala Gly Asn Glu Glu Ala
85 90 95

<210> 1825
<211> 17
<212> PRT
<213> Homo sapiens

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<400> 1825
Xaa Tyr Ser Glu Ser Xaa Tyr Asn Ser Leu Ala Val Val Leu Gln Pro
1 5 10 15

Arg

<210> 1826
<211> 69
<212> PRT
<213> Homo sapiens

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<222> (40)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1826
Thr Cys Arg Ala Leu Leu Arg Arg Xaa Ala Val Phe Gln Pro Ser Pro
1   5   10   15

Asn Ala Phe Phe Arg Cys Val Ser Glu Asp Leu Gly Phe Ala Val Leu
            20   25   30

Xaa Thr Gln Leu Met Leu Xaa Xaa Leu Arg Phe Thr Gly Phe Ile Thr
        35   40   45

Val Gly Ile Thr Pro Lys Ala Ser Pro Leu His Val Thr Glu His Val
    50   55   60

Leu Asn Gln Arg Ser
65

<210> 1827
<211> 167
<212> PRT
<213> Homo sapiens

<220>
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<222> (159)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1827
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Gly Glu Ala Phe Gly Ser Thr Leu Trp Asp Gly Pro Trp Arg Ala Leu
  1               5                  10                  15

Pro Xaa Xaa Xaa Gly Trp Arg Arg Lys Arg Pro Ile Trp Gly Trp Gly
             20                  25                  30

Pro Pro Ser Pro Trp Asn Xaa Ser Gly Ser Asp Ala Trp Cys Ala Trp
         35                  40                  45

Ser Thr Arg Glu Leu Val Arg Asp Val Ala Lys Met Leu Pro Thr Leu
     50                  55                  60

Gly Gly Glu Arg Lys Gly Ser Pro Arg Ile Leu Pro Arg Xaa Pro Pro
 65                  70                  75                  80

Arg Lys Leu Gly Xaa Leu Phe Leu Pro Gly Ala Gln Gly Thr His Tyr
                 85                  90                  95

Leu Xaa Pro Pro Xaa Val Trp Ala Gln Thr Arg Phe Pro Xaa Thr Xaa
            100                 105                 110

Gln Xaa Leu Leu Ala Ser Pro Phe Pro Xaa Xaa Lys Lys Lys Gln Lys
        115                 120                 125

Gly Gly Gly Lys Lys Arg Gly Xaa Leu Gly Gly Pro Phe Lys Gly Pro
    130                 135                 140

Pro Xaa Xaa Arg Phe Pro Phe Leu Lys Ile Gly Lys Asn Pro Xaa Gly
145                 150                 155                 160

Val Pro Ser Ser Pro Pro Phe
                165
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<210> 1828
<211> 23
<212> PRT
<213> Homo sapiens

<220>
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<222> (18)
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<222> (22)
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<220>
<221> SITE
<222> (23)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1828
Pro Tyr Ser Glu Ser Tyr Tyr Asn Ser Leu Ala Val Val Leu Gln Arg
1 5 10 15

Arg Xaa Val Xaa Asn Xaa Xaa
20

<210> 1829
<211> 35
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (1)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (3)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<220>
<221> SITE
<222> (20)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (25)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1829
```
Xaa Arg Xaa Lys His Met Xaa Phe Xaa Phe Xaa Leu Thr Leu Xaa Leu
  1               5                  10                  15

Pro Thr Ser Xaa Pro Glu Gln His Xaa Ser Cys Phe Asp Thr His Leu
             20                  25                  30

His Leu Tyr
         35
```

<210> 1830
<211> 74
<212> PRT
<213> Homo sapiens

<220>
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<222> (41)
<223> Xaa equals any of the naturally occurring L-amino acids

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<223> Xaa equals any of the naturally occurring L-amino acids

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<222> (72)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (74)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1830
Pro Arg Ser Pro Arg Val Leu His His Val Ser Val Leu Trp Gly Gly
1 5 10 15

Ser Lys Gly Pro Trp Ser Trp Pro Arg Pro Arg His Arg Glu Arg Leu
20 25 30

Asp Phe Leu Ser Leu Cys Ala Glu Xaa Leu Arg Trp Arg Pro Leu Ser
35 40 45

Leu Thr Gln Gln Leu Lys His Thr Ile Ser Gly Ser Xaa Trp Leu Pro
50 55 60

His Pro Leu Xaa Cys Pro Leu Xaa Ser Xaa
65 70

<210> 1831
<211> 43
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (32)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (35)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (43)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1831
Gly Thr Ser Gly Thr Arg Gly Gly Pro Val Pro Asn Ser Pro Tyr Ser
1   5   10   15

Glu Ser Tyr Tyr Asn Ser Leu Ala Val Val Leu Gln Leu Arg Asp Xaa
            20   25   30

Gly Asn Xaa Lys Tyr Phe Arg Ala Arg Met Xaa
        35   40

<210> 1832
<211> 66
<212> PRT
<213> Homo sapiens

<400> 1832
Glu Asn Leu Phe Ile Tyr Cys Leu Leu Val Met Gly Gly Glu Gly Arg
1   5   10   15

Phe Lys Gly Pro Gly Thr Trp Glu Pro Ser His Arg Asp Gln Arg Gly
            20   25   30

Leu Ser Leu Asn Thr Thr Gly Val Tyr Ser Gly Ser Ser Thr Gln Leu
        35   40   45

Leu Gly Ser Cys Pro Asn Gly Pro Pro Leu Gln His Pro Ser Trp Arg
    50   55   60

Arg Gly
65

<210> 1833
<211> 40
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (18)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (30)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (38)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1833
Ser Phe Pro Arg Thr Thr Gly Val Ser Ser Leu Ile Val Cys Tyr Ala
1 5 10 15

Met Xaa His Leu Lys Gln Tyr Phe Ile Leu Leu Phe Phe Xaa Lys Thr
20 25 30

Gln Asn Thr Cys Asn Xaa Lys Pro
35 40

<210> 1834
<211> 71
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (2)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<222> (26)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (43)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1834
Ala Xaa Arg Val Gly Gly Thr His Ala Ser Val Asp Pro Arg Val Arg
1 5 10 15

Asp Leu Gly Asn Tyr Pro Asn Lys Leu Xaa Ser Pro Leu Ser Cys Gln
20 25 30

Tyr Trp Asn Cys Ser Ser Gln Val Phe Ala Xaa Ile Ser His Pro Glu
35 40 45

Arg Lys Asn Asp Arg Glu Asn Leu Cys Ser Asp Thr Thr Asp Ser Tyr
50 55 60

Ile Val Glu Gln Tyr Leu Ser

65 70

<210> 1835
<211> 58
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (45)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1835
Ile Cys Pro Gln Asn Pro Leu Asn Pro Leu Gly Asn Leu Thr Gly Ser
1 5 10 15

Pro Lys Arg Asn Ser Ser Leu Asp Thr Arg Lys Lys Pro Trp Arg Glu
20 25 30

Ser Lys Lys Phe Asn Thr His Ser Arg Pro Lys Ser Xaa His Gln Leu
35 40 45

Arg Lys Arg Ser Ser Ser Thr Pro Thr Thr
50 55

<210> 1836
<211> 80
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (49)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1836
Val Cys Trp Pro Val Gly Phe Gly Thr Ser Phe Ser Glu Arg Arg Arg
1 5 10 15

Lys Leu Pro Trp Leu Glu Pro Cys Ser Ala Gly Lys Gly Val Trp Arg
20 25 30

Pro Leu Leu Gly Lys Trp Arg Thr Thr Ser Gly Ala Glu Glu Ala Cys
35 40 45

Xaa Arg Lys Val Ser Arg Ile His His Lys Arg Ala Thr Arg Ala Trp
50 55 60

Lys Lys Leu Lys Thr Cys Tyr Pro Pro Ser Leu Leu His Pro Gly Thr
65 70 75 80

<210> 1837
<211> 24
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (2)
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<220>
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<222> (20)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (23)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1837
Gly Xaa Gly Arg Glu Arg Glu Arg Thr Ser Leu Val Phe Phe Phe Phe
1 5 10 15

Phe Phe Gly Xaa Lys Ile Xaa Phe
20

<210> 1838
<211> 127
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (29)
<223> Xaa equals any of the naturally occurring L-amino acids

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<223> Xaa equals any of the naturally occurring L-amino acids

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<222> (90)
<223> Xaa equals any of the naturally occurring L-amino acids

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<222> (111)
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<220>
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<222> (119)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (122)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1838
```
His Glu Gly Glu Ile Ala Val Leu Ala Ser Gly Ala Arg Arg Leu Glu
  1               5                  10                  15

Leu Leu Arg Pro Arg Gly Asn Arg Ser Gly Thr Pro Xaa Gly Gly Glu
             20                  25                  30

Ala Ser Arg Ser Leu Arg Asp Thr Lys Ala Pro Ala Thr Arg Trp Leu
         35                  40                  45

Gln Leu Gly Arg Gly Arg Gln Asp Asp Gly Ser Gly Phe Gly Ser Val
     50                  55                  60

Thr Arg Arg Pro Glu Gly Ala Gly Pro Ala Xaa Ser Ala Arg Ala Pro
 65                  70                  75                  80

Ala Leu Ala Asp Arg Asp Leu Arg Pro Xaa Met Gly Lys Lys Ala Glu
                 85                  90                  95

Ala Arg Ala Pro Ile Leu Phe Gly Glu Lys Gln Ala Ser Leu Xaa Ser
            100                 105                 110

Phe Gly Ile Arg Lys Phe Xaa Thr Trp Xaa Lys Trp Cys Val Val
        115                 120                 125
```

<210> 1839
<211> 57

<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (38)
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<220>
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<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (54)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1839
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Ala Arg Ala Cys Ser Ser His Trp Cys Asp Ser Ser Ile Pro Phe Ala
 1               5                  10                  15

Arg Asn Gly Pro Gln Leu Leu Leu Arg His Trp Trp Leu Leu His Val
            20                  25                  30

Arg Arg Leu Leu Gln Xaa Gln Arg Val Gln Met Xaa Leu Leu Gln Xaa
        35                  40                  45

Glu Leu Leu Phe Leu Xaa Pro Arg Gly
    50                  55
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<210> 1840
<211> 33
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (10)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (18)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<222> (30)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (33)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1840
Gln Gln His Arg Arg Gly Ser Arg Glu Xaa Pro Ala Leu Leu Ala Pro
1 5 10 15

Arg Xaa Gly Ile Ser Phe Thr Lys Pro Thr Arg Leu Trp Xaa Pro Arg
20 25 30

Xaa

<210> 1841
<211> 85
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (8)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (12)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1841
Ala Arg Gly Gln Ser Ala Trp Xaa Thr Ala Leu Xaa Pro Trp Tyr Cys
1 5 10 15

Met His Ala Met Leu Ala Ala Pro Phe Pro Ser Trp Ala Pro Arg Val
20 25 30

Ser Pro Asp Pro Gly Ser Gln Val Cys Ser His Leu His Leu Pro His
35 40 45

Ser Pro Pro Leu Pro Ser Ser Arg His Leu His Ala His Leu Val Leu
50 55 60

Ser His Arg Pro Gln Lys Gly Gly His Glu Gly Thr Ser Leu Ala Glu
65 70 75 80

Leu Gly Gly Ala Gly
85

<210> 1842
<211> 64
<212> PRT
<213> Homo sapiens

<400> 1842
His Ala Thr Cys Asn Ser Leu His Asp Pro Phe Cys Ile Phe Lys Pro
1 5 10 15

Lys Leu Ser Ala Ser Val Ala Phe Gln Gly Asn Lys Glu Ser Asn Cys
20 25 30

Gly Leu Asp Phe Val Ser Phe Phe Gln Asn Leu Ser Phe Ile Gln Phe
35 40 45

Pro Ser Ile Ile Ile Tyr Phe Tyr Leu Glu Val Ser Lys Glu Val Phe
50 55 60

<210> 1843
<211> 73
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (12)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<222> (44)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<222> (55)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<222> (56)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<222> (70)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1843
```
Ser Trp Cys Phe Ser Glu Ile Ile Tyr Ile Phe Xaa Ser Gln Gly Leu
  1               5                  10                  15

Thr Val Ser Pro Arg Leu Glu Ala Glu Val Val Ala Arg Ala Glu Phe
             20                  25                  30

Asp Ile Lys Leu Ile Asp Thr Val Asp Leu Glu Xaa Gly Ala Arg Tyr
         35                  40                  45

Pro Ile Arg Pro Ile Ser Xaa Xaa Val Leu Gln Phe Thr Gly Pro Ser
     50                  55                  60

Phe Leu Lys Arg Gly Xaa Leu Gly Lys
 65                  70
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<210> 1844
<211> 73
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (7)
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<220>
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<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<222> (25)
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<222> (28)
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<222> (31)
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<222> (60)
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<222> (64)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<222> (68)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (69)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1844
Arg Gly Arg Gly Trp Arg Xaa Val Leu Leu Gly Trp Glu Gly Thr Ser
1   5   10   15

Pro Arg Thr Gln Xaa Gly Lys Gly Xaa Arg Pro Xaa Gly Glu Xaa Thr
            20   25   30

Asp Met Ser Leu Glu Asp Pro Phe Phe Val Val Arg Gly Glu Val Gln
        35   40   45

Lys Ala Val Asn Thr Gly Pro Arg Ala Val Pro Xaa Leu Val Arg Xaa
    50   55   60

Pro Ala Arg Xaa Xaa Gly Val Arg Asn
65   70

<210> 1845
<211> 67
<212> PRT
<213> Homo sapiens

<220>
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<220>
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<222> (21)
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<220>
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<222> (22)
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<222> (30)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (64)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1845
```
Ala Glu Gly Gln Ser Asn Leu Xaa Met Ser Gly Trp Phe Trp Thr Ala
  1               5                  10                  15

Thr Pro Ala Gly Xaa Xaa Pro Arg Ser Ser Cys Thr Thr Xaa Lys Val
             20                  25                  30

Ala Ser Ser Pro Lys His Ser Phe Pro Leu Xaa Ser Pro Ser Asn Pro
         35                  40                  45

Glu Ala Leu Trp Cys Ala Leu Cys Pro Met His Ser His Leu Ser Xaa
     50                  55                  60

Pro Pro Gly
 65
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<210> 1846
<211> 45
<212> PRT

<213> Homo sapiens

<220>
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<222> (1)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (17)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1846
Xaa Val Gln Thr Pro Ser Leu Leu Gly Thr Gly Val Arg Gly Arg Leu
1   5   10   15

Xaa Phe Val Glu Lys Pro Pro Val Lys Ala Ser Gly Gly Ser Pro Cys
            20   25   30

Cys Ile Val Cys Leu Leu Ser Phe Pro Leu Val Arg Arg
        35   40   45

<210> 1847
<211> 77
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (3)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<220>
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<222> (18)
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<220>
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<222> (22)
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<220>
<221> SITE

<222> (23)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (32)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<223> Xaa equals any of the naturally occurring L-amino acids

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<220>
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<222> (75)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (76)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1847
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Glu Gln Xaa Lys Glu His Thr Arg Ile Cys Ser Lys Ile Xaa Gly Arg
  1               5                  10                  15

Phe Xaa Gly Arg Gly Xaa Xaa Pro Thr Glu Pro Gly Asp Met Leu Xaa
             20                  25                  30

Val Gln Asp Lys Asn Xaa Arg Leu Thr Phe Lys Phe Gly His Arg Thr
         35                  40                  45

Leu Leu Asn Pro Xaa Gly Asn Leu Thr Gly Lys Pro Lys Glu Glu Gln
     50                  55                  60

Val Phe Trp Thr Leu Gly Lys Lys Pro Xaa Xaa Xaa Glu
 65                  70                  75
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<210> 1848
<211> 31
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (26)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (27)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (31)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1848
Ala Arg Ala His Thr His Pro Arg Thr Gly Phe Val Lys Lys Lys Lys
1 5 10 15

Lys Lys Lys Lys Lys Lys Lys Lys Lys Xaa Xaa Gly Gly Ala Xaa
20 25 30

<210> 1849
<211> 58
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (26)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1849
Trp Pro Ala Val Thr Gly Phe Lys Thr Gly Leu Phe Leu Val Lys Met
1 5 10 15

Gly Glu Leu Leu Ser Cys Gln Lys Cys Xaa Arg Ser Thr Trp Lys Thr
20 25 30

Lys Ser Ser Gln Arg Glu Ser Lys Glu His Leu Ile Ser Leu Ile Ser
35 40 45

Thr Cys Ser Tyr Phe Ser Lys Val Asn Ser
50 55

<210> 1850
<211> 69
<212> PRT
<213> Homo sapiens

<400> 1850
Ala Ile His Leu Pro Thr Pro Leu Phe Phe Lys Thr Ser Phe Asn Ser
1 5 10 15

Leu Asn Lys Ile Gly Phe Val Phe Asn Phe Tyr Ser Leu Phe Ile Glu
20 25 30

Ser Gln Leu Pro Leu Tyr Ile Ile Cys Tyr Trp Lys Arg Phe Leu Ser
35 40 45

Asn Leu Gln Ser Leu Ile Val Pro His Arg Val Gly Gln Trp Leu Leu
50 55 60

Glu Leu Glu Gly Pro
65

<210> 1851
<211> 166
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (98)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<222> (107)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (109)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<222> (111)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
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<222> (122)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (134)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (144)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (146)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (150)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (154)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1851
Met Trp Lys Val Asp Trp Asp Pro Val Val Ser His Pro Lys Pro Ala
1 5 10 15

Phe Arg Glu Gly Leu Gln Thr Gln Asn Val Asn Pro Ala Ser Pro Leu
20 25 30

Ser Gln Asn Cys Gly Leu Val Pro Gly Arg Gly Gly Gly Trp Gly Gly
35 40 45

Ala Gly Gly Lys Phe Arg Phe Trp Arg Ala Pro Cys Gly Asp Ala Pro
50 55 60

Ser Cys Ala Leu Leu Phe Pro Arg Trp Ser Pro Arg Ser Pro Ser Gly
65 70 75 80

Ser Ala Cys Pro Ala Leu Lys Arg His Pro Pro Phe His Pro Val Ser
85 90 95

Gly Xaa Gly Cys Gly Ser Gly Arg His Ala Xaa Pro Xaa Cys Xaa Val
100 105 110

Phe Glu Gln Ala Lys Ala Pro Thr Gly Xaa Gly Arg Ala Gly Val Lys
        115   120   125

Thr Val Lys Trp Leu Xaa Leu Asn Ile Pro Leu Trp Arg Asn Phe Xaa
    130   135   140

Lys Xaa Asn Ser Lys Xaa Ser Phe Trp Xaa Asn Glu Asn Gly Gln Val
145   150   155   160

Arg Leu Val Lys Asn Phe
                165

<210> 1852
<211> 74
<212> PRT
<213> Homo sapiens

<400> 1852
Asp Pro Arg Val Arg Gly Ala Arg Ser Val Val Leu Leu Leu Val Ala
  1   5   10   15

Val Arg Leu His Thr Leu Leu Ser Cys Pro Leu Glu Gln Pro Ala Gly
             20   25   30

Thr Glu Trp Ile Leu Glu Glu Gly Val Thr Thr Gly Pro Pro Arg Lys
        35   40   45

Pro Arg Ala Asp Ile Tyr Asn Leu Arg Ser Pro Asp Glu Phe Ile Val
    50   55   60

Gly Gln Asn Gln Ala Leu Ile Glu Pro Gly
65   70

<210> 1853
<211> 100
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (46)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (47)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (82)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1853
His Arg Gly Glu Cys Phe Ser Cys Val Ala Pro Arg Ala Gln Ser Ser
1 5 10 15

Cys His Arg Arg His Pro Gly Phe Gly Gly Ala Gly Leu Gln Ala Pro
20 25 30

Gly Arg Arg Thr Pro Arg Ala Thr Lys Ser Ser Leu Glu Xaa Xaa Ala
35 40 45

Ser Tyr Ala Gly Gly Arg Gly Gly Gly Pro Asp Phe Gly Ser Arg Gly
50 55 60

Leu Thr Gly Leu Val Arg Pro Val Trp Leu Leu Leu Trp Lys Gln Cys
65 70 75 80

Cys Xaa Leu Leu Glu Asp Lys Arg Glu Ser Lys Pro Leu Val Gly Glu
85 90 95

Ile Trp Leu Arg
100

<210> 1854
<211> 125
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (2)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (91)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (99)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (103)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (104)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (109)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (122)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1854
```
Arg Xaa Ala Gly Ala Gly Gly Pro Val Arg Gly Leu Leu Val Gly Leu
 1               5                  10                  15

Val Arg Gln Gln Arg Leu Arg Leu Arg Ser Gly Ala Gln Gln Pro His
            20                  25                  30

His Ala Ala Arg His Pro Asp Pro Gln Leu Cys Arg Arg Gly Arg Arg
        35                  40                  45

Arg Leu Leu Pro Gln Ser Ala Ala Ala Ala Ala Ala Gly Pro Gly Ala
    50                  55                  60

Pro Arg Ala Ala Pro Ala Pro Pro Ser Ala Thr Leu Pro Ala Gly Ala
65                  70                  75                  80

Ala Ala Pro Pro Ser Pro Pro Phe Ser Phe Xaa Leu Pro Arg Arg Pro
                85                  90                  95

Cys Pro Xaa Arg Pro Cys Xaa Xaa Ala Ala Pro Lys Xaa Pro Gly Ile
            100                 105                 110

Arg Cys Ser Glu Arg Glu Ser Asn Leu Xaa Arg Val Pro
        115                 120                 125
```

<210> 1855
<211> 85
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (38)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (49)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (51)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (69)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1855
Val Gly Ser Ala Cys Leu Leu Asn Trp Tyr Gln Pro Leu Pro Leu Pro
1 5 10 15

Ser Lys Phe Leu Val Pro Pro Leu Arg Asn Ser Arg Ile Val Leu Gln
20 25 30

Ile Asp Asn Ala Arg Xaa Ala Ala Asp Glu Leu Pro Asn Gln Val Ser
35 40 45

Xaa Ser Xaa Leu Gly Ala Ala Glu Ala Arg Thr Gly Val Gly Val Gly
50 55 60

Gly Phe Arg Asn Xaa Pro Ser Pro Ser Leu Asp Gly Leu Lys Leu Asn
65 70 75 80

Pro Pro Met Asp Ser
85

<210> 1856
<211> 44
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (19)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (21)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (26)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (34)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (38)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1856

```
Tyr Gln Gln Ile Thr Ser Ser Ser Arg Leu Ser Ile Gln Leu Ile Leu
 1               5                  10                  15

Ile Ser Xaa Asp Xaa Asn Val Thr Gln Xaa Leu Leu Ile Ala Pro Asn
            20                  25                  30

Lys Xaa Val Ser Val Xaa Pro Leu Pro Ser Glu Leu
        35                  40
```

<210> 1857
<211> 76
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (23)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (27)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (31)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (32)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (39)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (41)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (56)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (64)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1857
Ser Thr His Ala Ser Gly Phe Ser Ala Pro Ser Arg Ile Ser Ala Trp
1 5 10 15

Phe Gly Pro Pro Ala Ser Xaa Pro Ala Ser Xaa Met Ser Ile Xaa Xaa
20 25 30

Thr Gln Lys Ser Tyr Lys Xaa Ser Xaa Ser Gly Pro Arg Gly Phe Ser
35 40 45

Ser Arg Ser Tyr Thr Ser Gly Xaa Gly Ser Arg Ile Ser Ser Ser Xaa
50 55 60

Phe Ser Arg Val Gly Ser Ser Asn Phe Arg Gly Gly
65 70 75

<210> 1858
<211> 83
<212> PRT
<213> Homo sapiens

<220>

<221> SITE
<222> (71)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (75)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1858
Arg Leu Arg Thr Lys Thr Cys Thr Trp Ser Phe Pro Gly Ala Leu Cys
1   5   10   15

Val Val Glu Leu Arg Trp Asn Phe Gly Ala Leu Gly Cys Gln Arg Ala
            20   25   30

Cys Leu Val Ala Thr Glu Thr Ser Pro Ala Arg Leu Arg Gly His Phe
        35   40   45

Ile Thr Ile Gln Lys Cys Leu Pro Leu Lys Ala Ser Val Val Val Phe
    50   55   60

Lys Pro Gln Lys Ser His Xaa Gln Asp His Xaa Thr Thr Thr Leu Thr
65   70   75   80

Ser Val Pro

<210> 1859
<211> 58
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (10)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (12)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (25)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE
<222> (33)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (40)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (57)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1859
Lys Ser Ser Pro Gly Lys Met Gly Leu Xaa Glu Xaa Ala Thr Gly Thr
1 5 10 15

Ala Ser Cys Arg Trp Ser Trp Pro Xaa Ser His Arg Pro Val Tyr Lys
20 25 30

Xaa Cys Ala Ser Trp Thr Leu Xaa Ser Gly Thr Gly Ser Trp Thr Leu
35 40 45

Lys Ser Leu Val Pro Pro Ala Arg Xaa Trp
50 55

<210> 1860
<211> 61
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (45)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (47)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (59)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1860
Gln Asp Gln Ser Cys Arg Lys Met Asp Ser Glu Val Gln Arg Asp Gly

1 5 10 15

Arg Ile Leu Asp Leu Ile Asp Asp Ala Trp Arg Glu Asp Lys Leu Pro
20 25 30

Tyr Glu Asp Val Ala Ile Pro Leu Asn Glu Leu Pro Xaa Pro Xaa Gln
35 40 45

Asp Asn Gly Gly Thr Thr Asp Leu Ser Lys Xaa Lys Lys
50 55 60

<210> 1861
<211> 71
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (61)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1861
Ser Arg Gly Ala Pro Phe Phe Lys Pro Val Arg Lys Ala Gln Tyr Ser
1 5 10 15

Gly Gly Ser Asp Pro Ile Phe Gln Val Arg Pro Ser Pro Leu Ser Leu
20 25 30

Thr Arg Lys Gly Asn Ser Leu Thr Pro Cys Ala Ser Gln Val Arg Gln
35 40 45

Cys Ser Pro Cys Phe Gly Ser His Thr Val Arg Ala Xaa Thr Asp Leu
50 55 60

Cys Pro Leu Ser Gly Thr Pro
65 70

<210> 1862
<211> 59
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (57)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1862
Thr Pro Thr Pro Phe Gly Ser Ala Arg Ala Pro Gln Ala Arg Pro Gly
1 5 10 15

Arg Arg Asp Gly Arg Met Ser Gly Gly Arg Arg Lys Glu Glu Pro Pro
20 25 30

Gln Pro Gln Leu Ala Asn Gly Ala Leu Lys Val Ser Val Trp Ser Lys
35 40 45

Val Leu Arg Thr Thr Arg Pro Gly Xaa Ile Arg
50 55

<210> 1863
<211> 83
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (77)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (83)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1863
Gln Leu Ser Thr Leu Ile Asn Trp Leu Gln Ser Thr Ser Pro Ala Ala
1 5 10 15

Gly Lys Lys Gly Gly Arg Ser Pro Gly Arg Phe Glu Ala Ala Ser Ser
20 25 30

Asn Leu Gln Phe Asn Met Lys Ile Thr Ser Glu Leu Val Lys Arg Gly
35 40 45

Leu Thr Pro Val Phe Arg Phe Thr Val Gln Cys Phe Thr Gln Pro Phe
50 55 60

Tyr Leu Thr Pro Lys Lys Lys Lys Lys Lys Lys Asn Xaa Gly Gly Gly
65 70 75 80

Pro Gly Xaa

<210> 1864
<211> 37
<212> PRT
<213> Homo sapiens

<400> 1864
Glu Gln Leu Lys Glu His Thr Arg Leu Cys Ser Lys Ile Val Gly Arg
1 5 10 15

Phe Ile Gly Arg Gly Asp Lys Pro Thr Glu Pro Gly Asp Ser Trp Leu
20 25 30

Ser Lys Ile Glu Ser
35

<210> 1865
<211> 41
<212> PRT
<213> Homo sapiens

<400> 1865
Glu Gln Leu Lys Glu His Thr Arg Leu Cys Ser Lys Ile Val Gly Arg
1 5 10 15

Phe Ile Gly Arg Gly Asp Lys Pro Thr Glu Pro Gly Asp Ser Trp Leu
20 25 30

Ser Lys Ile Glu Ser Leu Val Gln Leu
35 40

<210> 1866
<211> 33
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (32)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1866
Asn Thr Glu Leu Thr Ile Asn Ser Pro Ile Ser Thr Ile Asn Gln Gln
1 5 10 15

Val Ile Ile Thr Leu Thr Val Asn Pro Thr Lys Lys Lys Lys Lys Xaa
20 25 30

Lys

<210> 1867
<211> 143
<212> PRT
<213> Homo sapiens

<400> 1867
Gly Ser Gly Gly Lys Met Glu Asp His Gln His Val Pro Ile Asp Ile
1 5 10 15

Gln Thr Ser Lys Leu Leu Asp Trp Leu Val Asp Arg Arg His Cys Ser
20 25 30

Leu Lys Trp Gln Ser Leu Val Leu Thr Ile Arg Glu Lys Ile Asn Ala
35 40 45

Ala Ile Gln Asp Met Pro Glu Ser Glu Glu Ile Ala Gln Leu Leu Ser
50 55 60

Gly Ser Tyr Ile His Tyr Phe His Cys Leu Arg Ile Leu Asp Leu Leu
65 70 75 80

Lys Gly Thr Glu Ala Ser Thr Lys Asn Ile Phe Gly Arg Tyr Ser Ser
85 90 95

Gln Arg Met Lys Asp Trp Gln Glu Ile Ile Ala Leu Tyr Glu Lys Asp
100 105 110

Asn Thr Tyr Leu Val Glu Leu Ser Ser Leu Leu Val Arg Asn Val Asn
115 120 125

Tyr Glu Ile Pro Ser Leu Lys Lys Gln Ile Ala Lys Cys Gln Gln
130 135 140

<210> 1868
<211> 37
<212> PRT
<213> Homo sapiens

<400> 1868
Glu Gln Leu Lys Glu His Thr Arg Leu Cys Ser Lys Ile Val Gly Arg
1 5 10 15

Phe Ile Gly Arg Gly Asp Lys Pro Thr Glu Pro Gly Asp Ser Trp Leu
20 25 30

Ser Lys Ile Val Ser
35

<210> 1869
<211> 57
<212> PRT
<213> Homo sapiens

<400> 1869
Ile Leu Gln Ala Val Arg Thr Glu Trp Tyr Ile Val Val Phe Leu Asn
1 5 10 15

Ile Ser Glu Pro Arg Lys Gly Thr Val Glu Ile Arg Tyr Tyr Asn Leu
20 25 30

Met Gly Pro Leu Ser Val Cys Gly Leu Leu Leu Thr Glu Met Leu Cys
35 40 45

Ser Thr Trp Ala Ala Met Arg Leu Pro
50 55

<210> 1870
<211> 63
<212> PRT
<213> Homo sapiens

<400> 1870
Val Pro His Ser Glu Leu Leu Gln Pro Ala Ser Arg Ile Cys Ser Met
1 5 10 15

Ser Arg Arg Ser Gln Ser Leu Ala Ala Ser Ser Val Pro Gly Glu Arg
20 25 30

Cys Leu Glu Leu Ser Ser Gln Gly Val Met Ser Ala Ser Arg Val Cys
35 40 45

Met Gly Ala Glu Gly Thr Leu Leu Leu Pro Pro Trp Ser Gly Asn
50 55 60

<210> 1871
<211> 70
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (19)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (62)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (63)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (68)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1871
Thr Trp Cys His Glu Val Gly Glu Leu Gly Glu Leu Ser His Ser Ser
1 5 10 15

Tyr Arg Xaa Ala Phe Leu Lys Cys Pro Leu Thr Ser Arg Phe Cys Ser
20 25 30

Arg Ser Ser Phe Ser Glu Leu Lys Val Ile Phe Ile Tyr Val Trp Gly
35 40 45

Lys Ile Asn Ser Ser Ser Lys Arg Ile Leu Ile Arg Leu Xaa Xaa Leu
50 55 60

Leu Lys Thr Xaa Pro Asn
65 70

<210> 1872
<211> 47
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (45)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1872
Glu Thr Trp His Leu Asn His Ile Leu Ser Leu Gly Lys Ser Phe Gly
1 5 10 15

Leu Cys Ser Cys Phe Val Cys Phe Thr Cys Phe Pro Pro Ser Pro Lys
20 25 30

Pro Phe Val Leu Ser Val Lys Leu Thr Phe Pro Phe Xaa Phe Leu
35 40 45

<210> 1873
<211> 75
<212> PRT
<213> Homo sapiens

<400> 1873
Lys Thr Leu Leu Leu Trp Asn Met Lys Leu Cys Val Arg Trp Arg Asp
1 5 10 15

Pro Leu Asn Leu Arg Ala Leu Asn Ser Pro Glu Ser Thr Leu Gly Arg
20 25 30

Phe Ala Met Glu Leu Lys Leu Glu Val Ile Phe Leu Gly Ala Leu Glu
35 40 45

Ser Phe Leu Gly Thr Gln Asn Tyr Gln Lys Ser Gly Thr Val Arg Arg
50 55 60

Lys Ser Val Cys Lys Thr Gly Phe Leu Glu Val
65 70 75

<210> 1874
<211> 107
<212> PRT
<213> Homo sapiens

<400> 1874
Ile Asn Asn Ile Ser Arg Gln Ile Tyr Leu Thr Asp Asn Pro Glu Ala
1 5 10 15

Val Ala Ile Lys Leu Asn Gln Thr Ala Leu Gln Ala Val Thr Pro Ile
20 25 30

Thr Ser Phe Gly Lys Lys Gln Glu Ser Ser Cys Pro Ser Gln Asn Leu
35 40 45

Lys Asn Ser Glu Met Glu Asn Glu Asn Asp Lys Ile Val Pro Lys Ala
50 55 60

Thr Ala Ser Leu Pro Glu Ala Glu Glu Leu Ile Ala Pro Gly Thr Pro

65 70 75 80

Ile Gln Phe Asp Ile Val Leu Pro Ala Thr Glu Phe Leu Asp Gln Asn
85 90 95

Arg Gly Ser Arg Arg Thr Asn Pro Phe Gly Glu
100 105

<210> 1875
<211> 84
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (33)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (34)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1875
Gly Glu Glu Ala Cys Phe Ala Val Gly Ser Leu Val Leu Ala Arg Ser
1 5 10 15

Leu Arg Val Cys Thr Gly Gly Thr Leu Pro Leu Pro Ala Pro Phe Leu
20 25 30

Xaa Xaa Pro Val Gly Asn Ile His Leu Phe Met Pro Val Cys Cys Met
35 40 45

Gln Ala Phe Trp Leu Pro Thr Leu Gln Gln Asn Glu Leu His Gln Leu
50 55 60

Leu Ser Ala Asp Ser Ala His Arg Glu Ser Trp Ser His Ser Leu Phe
65 70 75 80

Cys Phe Ala Leu

<210> 1876
<211> 65
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (6)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (16)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (37)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (40)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (41)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1876
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Gln Trp Gly Phe Val Xaa Asp Lys Met Ala Met Ala Gly Arg Val Xaa
  1               5                  10                  15

Pro Pro Ser Tyr Asp Glu Arg Pro Phe His Arg Pro Val Thr Glu Leu
             20                  25                  30

Arg Glu Asp Lys Xaa Ser Glu Xaa Xaa Gly Pro Ala Ser Leu Leu Leu
         35                  40                  45

Thr Arg Pro Val Pro Lys Lys Tyr Val Phe Gln Asn Ala Leu Asn Leu
     50                  55                  60

Asn
 65
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<210> 1877
<211> 58
<212> PRT
<213> Homo sapiens

<220>
<221> SITE
<222> (7)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (47)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (51)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (52)
<223> Xaa equals any of the naturally occurring L-amino acids

<220>
<221> SITE
<222> (55)
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1877
Arg Ala Pro Pro Gly Gln Xaa Gly Gly Asp His Gln Asp Phe Ile Gln
1   5   10   15

Gly Gly Arg Asp Gln Glu Ile Lys Pro Pro Thr Leu Ser Val His Thr
            20   25   30

Gly Leu Cys Asp Tyr Ile Asp Gln Pro Leu Lys Ile Lys Gln Xaa Leu
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Ile Cys Xaa Xaa Asp Lys Xaa Lys Ile Ser
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<210> 1878
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<400> 1878
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Ala Gly Ser Gly Ser Asn Arg Gly Phe His Ser Phe Ile Ser Xaa Leu
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Ala Asp Lys Asp Pro Gly Xaa His Val Leu Leu Ile Xaa
35 40 45

<210> 1879
<211> 54
<212> PRT
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<400> 1879
Val Lys Met Ile Ile Gly Pro Lys Leu Thr Ala Leu Pro Lys Arg Gln
1 5 10 15

Arg Ser Gln Asp Ile Gly Arg Ser Gly Ala Ala Leu Glu Thr Leu Lys
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Phe Thr Ser Met Arg Gly Leu Glu Cys Ser Leu Gly Arg Arg Ala Ser
35 40 45

Thr Cys Ser Pro Gly Pro
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<210> 1880
<211> 77
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<400> 1880
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Ser Gly Val Ala Ser Met Glu Arg Ala Glu Ser Ser Ser Thr Glu Pro
20 25 30

Ala Lys Ala Ile Lys Pro Ile Asp Gln Lys Ser Val His Gln Ile Cys

35 40 45

Ser Gly Gln Val Val Leu Ser Leu Ser Thr Ala Val Lys Glu Leu Val
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<210> 1883
<211> 86
<212> DNA
<213> Homo sapiens

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cccgaaatat ctgccatctc aattag 86

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<400> 1884
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gcccctaact ccgcccagtt ccgcccattc tccgccccat ggctgactaa ttttttttat 180
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<210> 1887
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<210> 1888
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cagttccgcc cattctccgc cccatggctg actaattttt tttatttatg cagaggccga 180
ggccgcctcg gcctctgagc tattccagaa gtagtgagga ggcttttttg gaggcctagg 240
cttttgcaaa aagctt 256

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/05988

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :Please See Extra Sheet.
US CL :536/23.1; 435/320.1, 325, 455, 68.1; 530/300, 350
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 536/23.1; 435/320.1, 325, 455, 68.1; 530/300, 350

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

BIOSIS, MEDLINE, CAPLUS, BIOTECHDS, EMBASE, SEQ Search
prostate, cancer, carcinoma, protein, peptide, gene, dna, transfect

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	SCHAAPVELD et al. The Mouse Gene Ptprf Encoding the Leukocyte Common Antigen-Related Molecule LAR: Cloning, Characterization, and Chromosomal Localization. Genomics. 01 May 1995, Vol. 27, No. 1, pages 124-130, see entire document.	1-4, 21
X	DE PLAEN et al. Structure, chromosomal localization, and expression of 12 genes of the MAGE family. Immunogenetics. September 1994, Vol. 40, pages 360-369, especially page 363 and entire document.	1-4 and 21

[X] Further documents are listed in the continuation of Box C. [ ] See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
15 MAY 2000	05 JUL 2000

Name and mailing address of the ISA/US	Authorized officer
Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	JOHN BRUSCA JOYCE BRIDGERS PARALEGAL SPECIALIST CHEMICAL MATRIX
Facsimile No. (703) 305-3230	Telephone No. (703) 308-0196

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/05988

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	ADAMS et al. Initial assessment of human gene diversity and expression patterns based upon 83 million nucleotides of cDNA sequence. Nature. 28 September 1995, Vol. 377, Supp, pages 3-17, see entire document.	1-4 and 21
X	HILLIER et al. Generation and analysis of 280,000 human expressed sequence tags. Genome Research. 1996, Vol. 6, No. 9, pages 807-828, see entire document.	1-4 and 21
X	KOHFELDT et al. Nidogen-2: A new basement membrane protein with diverse binding properties. J. Mol. Biol. 1998, Vol. 282, No. 1, pages 99-109, see entire document.	1-4 and 21

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/05988

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Please See Extra Sheet.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-12, 14-16, 21 and SEQ ID NOS: 1-10

Remark on Protest
☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/05988

A. CLASSIFICATION OF SUBJECT MATTER:
IPC (7):

C07H 21/04; C12N 15/63, 15/85, 15/09; C07K 5/00, 14/00; C12P 21/00

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING
This ISA found multiple inventions as follows:

This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Group I, claim(s)1-12, 14, 15, 16 and 21, drawn to cDNA, polypeptides, genes, a method of using the cDNA to make host cells comprising the cDNA, and a method of making the polypeptide.
Group II, claim(s) 13, drawn to an antibody specific for the polypeptides of Group I.
Group III, claim(s) 17, drawn to a therapeutic method of using the cDNA or the polypeptide of Group I.
Group IV, claim(s)18 and 19, drawn to a diagnostic method of using the cDNA or polypeptide of Group I.
Group V, claim(s) 20, drawn to a method of using the polypeptide of Group I to isolate a binding partner.
Group VI, claim(s) 22, drawn to a method of using the cDNA of Group I to identify the activity of the polypeptide encoded by the cDNA.
Group VII, claim 23, drawn to the binding partner made by the method of Group V.

The inventions listed as Groups I-VII do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: PCT Rule 13.1 and Annex B do not provide for unity of invention between two or more different products or methods of use that share a special technical feature.

In addition, each Group detailed above reads on distinct Groups drawn to multiple SEQ ID Numbers. The sequences are distinct because they are unrelated sequences, and a further lack of unity is applied to each Group. The lack of unity is partially waived and the Applicant(s) must further elect up to 10 SEQ ID Numbers for examination in the elected Group detailed above.